A. E. HEUSTIS JR., M. D.

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CONTENTS AND SUBJECT INDEX

Intra-Abdominal Cryptorchidism. G. B. Dorff, M.D., Brooklyn..1799
Treatment of Wounds Resulting from Deep Burns. V. P. Blair, M.D., and L. T. Byars, M.D., St. Louis..1802
Gonococcic Meningitis. Sara E. Branham, M.D.; Reginald H. Mitchell, M.D., and William Brainin, M.D., Washington, D. C.....1804
Prostatic Resection. J. L. Emmett, M.D., Rochester, Minn.....1807
Treatment of Alcoholic Psychoses with Benzedrine Sulfate. Edward C. Reifenstein Jr., M.D., and Eugene Davidoff, M.D., Syracuse, N. Y.....1811
Fatalities Following Injection Treatment of Hernia. Clarence J. Berne, M.D., Los Angeles....1812
Precocious Sexual Development from an Anterior Pituitary-like Principle. W. O. Thompson, M.D., and N. J. Heckel, M.D., Chicago..1813
Renal Mobility. Elmer Hess, M.D., Erie, Pa.....1818
Intersexuality. William H. Rubovits, M.D., and William Saphir, M.D., Chicago 1823

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

Rupture of the Gallbladder Without Associated Cholecystitis. Howard A. Rusk, M.D., and Ernest N. Neber, M.D., St. Louis.....1826
Two-Plane Direction and Range Finder for Nailing Fractures of Neck of Femur. Gilson Colby Engel, M.D., and Hans May, M.D., Philadelphia 1828
Rasmussen Aneurysm: Its Roentgen Appearance. Barnet P. Stivelman, M.D., and Milton Malev, M.D., New York.....1829

SPECIAL ARTICLE

Vitamin E. H. A. Mattill, Ph.D., Iowa City.....1831

COUNCIL ON PHARMACY AND CHEMISTRY 1837

COUNCIL ON FOODS 1837

EDITORIALS

Misinformed Senate Passes Bill Favoring Osteopathy.....1838
Atmospheric Contamination.....1839
Disclosure of Drug Formulas Under Federal Trade Commission Act.1840

CURRENT COMMENT

Selenium in Industry.....1840
The Selection of Interns for Municipal Hospitals.....1841

BUREAU OF LEGAL MEDICINE AND LEGISLATION 1865

(Subject Index on next page)

ORGANIZATION SECTION
Facing page 1884

The Cancer Program in Connecticut. Matthew H. Griswold, M.D., Kensington, Conn.....221B
Collecting Medical Fees.....224B
Graduate Medical Education: XIII. Mississippi 226B
Physicians and the Social Security Act 227B
Official Notes.....227B
Medical Legislation.....228B
Woman's Auxiliary.....228B

A.M.A. SESSION—San Francisco—JUNE 13-17, 1938

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Full Details in SAUNDERS ADVERTISEMENT—Page 3

SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics.

Abortion, sea tangle tents in....1859
Advertising, French physicians, proposal to punish....1847
Air pollution....E-1839
Alcoholism, benzedrine sulfate in....*1811
Allergy, desensitization in arrested pulmonary tuberculosis....1854
eclampsia....ab-1881
honey and bee venom in....1856
to heat....1857
to house dust....1858
American Board of Pediatrics....1845
Gynecological Society....1845
Heart Association....1845
Ophthalmological Society....1844
Proctological Society....1844
Society of Clinical Pathologists....1844
Anemia, thrombocyte count in....ab-1884
Aneurysm, Rasmussen....*1829
Arsenic poisoning by grape parasiticides..ab-1882
Arthritis, gonococcic....ab-1874
pain in auricular nerve....1858
Association for Research in Ophthalmology..1844
for Study of Allergy....1844
Bachman skin test for trichinosis....1854
Bacteria flora of clean surgical wounds..ab-1869
Bee venom and honey in allergy....1856
Benzedrine sulfate in alcoholic psychoses..*1811
Blindness, prevention, courses for teachers..1844
Blood circulation, lobeline velocity test..ab-1884
pressure, high, caused by secretion of ischemic kidney....1848
pressure, high hereditary....1847
vessels lesions in brain tumors....ab-1877
Board Examinations....1859
Body fluids, salt deficiency and extracellular fluids....ab-1878
Bone marrow in nephritis....ab-1880
Book Notices....1860
Books Received....Adv. page 27
Bradley, C. A., veteran physician honored..1843
Brain tumors, primary, fibroblastic....ab-1875
tumors, with vascular lesions....ab-1877
Bronchiectasis, poppyseed oil in....1855
Bureau of Investigation....1853
Bureau of Legal Medicine and Legislation..1865
Burns, deep, treatment....*1802
Cancer, immunization against....ab-1867
"specialist" enjoined from practicing....1842
Car sickness in children....1859
Carbohydrate metabolism and vitamin B_1..ab-1883
Carson, J. O., veteran physician honored...1842
Casey, Albert, goes to Louisiana....1843
Cataract, intracapsular extraction....ab-1870
Cholesterol in milk, value....ab-1867
Citrus industry, cutaneous hazards in...ab-1869
Colitis, acidophilus milk therapy....ab-1884
Contraceptives, bill to regulate sale....1846
Cook County Hospital, case records on film solves storage problem....*1863
Correspondence....1853
Council on Foods....1837
Council on Pharmacy and Chemistry....1837
Deaths....1850
Dementia Praecox, shock therapy..1849; ab-1883
Dextrose and nerve injuries....C-1854
Diabetes, New York Association, incorporated....1843
Drugs: misbranding; advertising matter not accompanying drug as evidence....Ml-1865
formulas, disclosure under Federal Trade Commission Act....E-1840
Dust, house, desensitization to....1858
Eclampsia allergy....ab-1881
treatment....1855
Electrical accidents, heart after....ab-1880
Encephalitis viruses, differentiation of...ab-1872
Endometrium, aberrant, endometriosis...ab-1871
Erythrocytes, fragility of....ab-1878
fragility of, estimation....ab-1878
Exophthalmos, causes....1846
Extremities, infections of, immobilization and posture in....ab-1873
Eyes, hereditary diseases....1848
Fall, C. P., veteran physician honored....1843
Feces, congenital steatorrhea from pancreatic defect....ab-1876
Federal Trade Commission Act, disclosure of drug formulas....E-1840
Fee splitting, France, proposal to punish..1847
Femur fractures, nailing....*1828
Film, case records on....*1863
Fish workers, Weil's disease in..ab-1877; ab-1879
Follutein, precocious puberty from....*1813
Foreign Letters....1846
Fruit industry, cutaneous hazards in....ab-1869
Gallbladder rupture without cholecystitis..*1826
Genitals, precocious development....*1813
Giardiasis, treatment....C-1853
Gonadotropic Substance in cryptorchidism..*1799
precocious sexual development from....*1813
Gonococcic meningitis....*1804
Government Services....1845
Harrison Narcotic Act, registration under..1845
Health units consolidated, Kentucky....1842
Heart after electrical accidents....ab-1880
Heat, possible allergy to....1857
Hemorrhage, lyophile serum in....ab-1869
Hermaphroditism, intersexuality....*1823
Hernia, injection treatment, fatalities....*1812
Hospital commissioner report, New York..1843
records, on film....*1863
Hydrocarbons, skin eruptions from....ab-1872
Indian or Karaya gum....1854
Industrial firms, rules governing disclosure of medical examination to....1856
Insemination, artificial....1857
Instruments, two-plane direction and range finder for nailing femur fractures...*1828
Insulin, Oralsulin....1858
Insurance, health: hospital associations; liability under bond to hospital furnishing services....Ml-1866
Interns, selection of, for municipal hospitals....E-1841
senior medical, vacancies for....1845
Intestines, small, intubation of....ab-1875
Jaundice, spirochetal, in fish workers....ab-1877; ab-1879
therapy of....C-1853
Kidney mobility....*1818
ischemic, secretion of, causes hypertension..1848
Korsakoff's psychosis, benzedrine sulfate in....*1811
Lactation, effect of prolactin on....ab-1871
Leprosy, Wassermann reaction in....ab-1884
Lungs, cancer, metastases to meninges..ab-1867
changes in rheumatic fever....ab-1871
Lupus erythematosus, relapse, after sodium gold thiosulfate....ab-1869
Malpractice: release of tort feasor; effect on physician's liability....Ml-1866
Marihuana Tax Act, registration under....1845
Marriages....1849
Marriages, control of....1846
Medical Education, graduate, programs, Wis..1844
Medical Examination, rules governing disclosure of, to industrial firms....1856
Medical Examinations and Licensure....1859
Medical Society of Milwaukee County new executive secretary....1844
Medicolegal Abstracts....1865
Meetings, Coming Meetings....1866
Mellon Lecture, Dr. Whipple gives....1844
Meninges, cancer, metastatic, from lungs..ab-1867
Meningitis, gonococcic....*1804
Meningo-Encephalitis and infectious mononucleosis....ab-1884
Mental Health, conference on....1842
Milk, acidophilus, in colitis....ab-1884
cholesterol in, value....ab-1867
Mononucleosis, infectious, and meningoencephalitis....ab-1884
Mouth, mixed tumors of buccal cavity...ab-1880
Muscles, progressive muscular dystrophy, heredity in....ab-1882
Nephritis, bone marrow in....ab-1880
Nerve, auricular, pain in....1858
injuries, and dextrose....C-1854
Neurosyphilis, malaria treatment....ab-1868
New and Nonofficial Remedies....1837
New York Academy, selecting interns...E-1841
News....1841
Nicotine sulfate spray intoxication....ab-1883
Nitrogen metabolism, relation of vitamin C to, in psoriasis vulgaris....ab-1879
Nutrition level, vitamin B_1 index....ab-1878
Oralsulin....1858
Osteomyelitis, pectin in....1859
Osteopathy, senate bill favoring....E-1838
Pancreatic defect and steatorrhea....ab-1876
Paralysis, painful, after antirabic treatments....1857
Parathyroids, transplantation....1848
Pectin in osteomyelitis....1859
Pediatrics, course in, Arkansas....1841
Peptic Ulcer, vitamin C deficiency in...ab-1877
vitamin C deficiency in, capillary resistance test....ab-1877
Pharmaceutic specialties, limit prescription..1847
Physical Examinations: plaintiff in personal injury suit; rights of defendant....Ml-1865
rules governing disclosure to industrial firms....1856
Pickering, G. W., lectures....1843
Pleionexy, menace of sodium bicarbonate..ab-1870
Pneumonia, quinine-calcium in....ab-1882
Pneumoperitoneum in pulmonary tuberculosis....ab-1873
Poppyseed oil in bronchiectasis....1855
Posture and immobilization in infections of extremities....ab-1873
Pregnant workwoman, protection....1848
Prolactin, effect on milk secretion....ab-1871
Prostate resection, "cold punch"....*1807
Psoriasis vulgaris, relation of vitamin C to nitrogen metabolism in....ab-1879
Psychosis, alcoholic, benzedrine sulfate in..*1811
Psychotherapy, International Congress of..1846
Pyelography, respiration, kidney mobility..*1818
Pyorrhea, removal of teeth for....1855
Pyuria, mandelic acid in....ab-1870
Queries and Minor Notes....1854
Quinine-calcium in pneumonia....ab-1882
Rabies, painful paralysis after treatments..1857
Records, transferring case records to film..*1863
Resectoscope, Thompson....*1809
Rheumatic Fever, pulmonary changes in..ab-1871
San Francisco's Treasure Island, tours to..1845
Schizophrenia, insulin shock therapy....ab-1883
Sciatica, bilateral....1858
Sclerosis, multiple, intraspinal vitamin B_1 for....1859
Selenium as industrial hazard....E-1840
Sex, intersexuality....*1823
precocious sexual development from gonadotropic principle....*1813
Shock, therapy with lyophile serum....ab-1869
Silicosis, prevalence....1848
Skin diseases, sodium hexamethaphosphate in....1857
disorders, fever therapy....ab-1875
eruptions from hydrocarbons....ab-1872
hazards in citrus industry....ab-1869
temperature in different diseases....ab-1881
Society Proceedings....1866
Sodium bicarbonate, menace of....ab-1870
chloride, deficiency, and extracellular fluids....ab-1878
hexamethaphosphate in hyperhidrosis and skin diseases....1857
Spinal Cord, spontaneous hematomyelia..ab-1876
State Board Examinations....1859
Sterility, vitamin E....*1831
Sulfur orally administered....ab-1882
Sweating, sodium hexamethaphosphate in...1857
Syracuse University alumni reunion....1843
Teeth, removal of, for pyorrhea....1855
Temperatures, low, conditions due to....1849
Testis, undescended, gonadotropic substance in....*1799
Tetany following sodium bicarbonate....ab-1870
Throat, pains in....ab-1882
Thrombocyte count in anemia....ab-1884
Tongue, burning....1858
Tonics and Sedatives....Adv. page 22
Trichinosis, intradermal and precipitin tests for....1854
Tuberculosis, National Association....1845
Tuberculosis, Pulmonary, contralateral, effect of pneumothorax on....ab-1881
arrested, desensitization in....1854
pneumoperitoneum in....ab-1873
Tumors, mixed, of buccal cavity....ab-1880
Typhoid, sulfur metabolism in children in..ab-1881
Undulant Fever in children....ab-1876
United States Employees' Compensation Act favors osteopathy....E-1838
University of Chicago, appointments....1842
of Louisville alumni meeting....1844
Urea for wound infections....ab-1874; ab-1879
Urine, specific gravity....ab-1881
vitamin B_1 in, as nutritional index..ab-1878
Vitamins A and D, intramuscularly....ab-1879
B_1 and carbohydrate metabolism....ab-1883
B_1 in urine, index of nutritional level..ab-1878
B_1, intraspinal, for multiple sclerosis....1859
C, and nitrogen metabolism in psoriasis vulgaris....ab-1879
C deficiency in peptic ulcer....ab-1877
C deficiency in peptic ulcer, capillary resistance test....ab-1877
E....*1831
Waggener, John A., veteran physician honored....1843
Wassermann reaction in leprosy....ab-1884
Wayne University alumni reunion....1842
Wilson, J. E., veteran physician honored..1842
Workmen's Compensation Acts: medical fees; jurisdiction of industrial commission....Ml-1865
Wound infections, urea for....ab-1874; ab-1879
surgical, clean, bacterial flora....ab-1869
Yellow Fever vaccination....ab-1868
virus, transmission by Aedes aegypti..ab-1869

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INTRA-ABDOMINAL CRYPTORCHIDISM TREATED WITH GONADOTROPIC SUBSTANCE

V. OBSERVATIONS IN A SERIES OF TWELVE PREPUBERAL BOYS

GEORGE B. DORFF, M.D.

BROOKLYN

In several previous reports I indicated the definite and distinct value of treatment with gonadotropic substance for prepuberal boys presenting genital underdevelopment in the form either of hypoplasia or of cryptorchidism or of both. It has been indicated that, as a result of employing endocrine therapy, hypoplastic genitals can be stimulated to apparent normality or even to the point of hypertrophy and also that testes situated in the inguinal canal can be developed, caused to descend and made to anchor in the scrotum.[1]

Hypoplasia and inguinal cryptorchidism are not the only types of genital underdevelopment that are encountered and that require correction. In the course of my experience I have encountered a number of cases of the more severe type of genital underdevelopment, in which there was an apparent absence of one or both testicles from the scrotum or inguinal canal. In these cases, to be referred to hereafter in this paper as intra-abdominal cryptorchidism, I was confronted with the choice of watchful waiting, surgery or endocrine therapy. I chose endocrine therapy in view of the success I had with it in treating the comparatively milder forms of genital underdevelopment. The results that ensued were so gratifying after treatment with gonadotropic substance of this more severe type of genital underdevelopment that I am reporting in brief the cases of twelve prepuberal boys showing intra-abdominal cryptorchidism and submitting the following observations for consideration.[2]

Read before the New York Endocrinological Society, March 23, 1938.

From the endocrine clinics of the Department of Pediatrics of New York University College of Medicine and the Children's Medical Service of the Third Medical Division, Bellevue Hospital and Beth-El Hospital.

1. Reports previously published on the study of genital underdevelopment in boys and referred to in this paper are the following:
   (a) Dorff, G. B.: Maldevelopment and Maldescent of the Testes: I: Report of Treatment with the Anterior Pituitary-like Gonadotropic Hormone from the Urine of Pregnant Women, Am. J. Dis. Child. **50**: 649 (Sept.) 1935.
   (b) II: Further Observations on Treatment with Anterior Pituitary-like Gonadotropic Hormone, ibid. **50**: 1429 (Dec.) 1935.
   (c) III: Treatment of the Several Types of Adiposogenital Dystrophy in Boys, with Particular Reference to the Use of Gonadotropic Hormone from the Urine of Pregnant Women for Their Imperfectly Developed Genitals, J. Pediat. **8**: 704 (June) 1936.
   (d) IV.: The Treatment with Gonadotropic Hormone (Anterior Pituitary-like) of Nonadipose Boys Showing Genital Dystrophy, ibid. **10**: 517 (April) 1937.

2. The follutein was supplied by E. R. Squibb & Sons, the Antuitrin-S by Parke, Davis & Co., the A. P. L. by Ayerst, McKenna & Harrison, and the Antophysin by the Winthrop Chemical Company. All these gonadotropic preparations are products obtained from the urine of pregnant women.

It should be kept in mind that the undescended testicles in these boys could at no time be palpated by me on any examinations prior to treatment with gonadotropic substance nor were they ever noted previously either by the parents or by other physicians.

REPORT OF CASES

CASE 1.—In A. B., aged 10 years (adiposogenital dystrophy due to primary hypothyroidism), the left testis was not felt and the right testis was hypoplastic in the midscrotum; the external genitals were infantile. After 68,000 rat units of follutein was given in sixteen months, the left intra-abdominal testis was still not felt and the right testis and external genitals were well developed. On examination two years later, the status of the genitals was the same. The result of treatment was negative. (Previously reported as case 2.[1a])

CASE 2.—In P. L., aged 7½ years (adiposogenital dystrophy due to hypothyroidism), the right testis was not felt, the left was hypoplastic in the scrotum and the external genitals were hypoplastic. The patient was injected with 20,000 rat units of follutein in ten months. At that time the right testis was found to be of good size in the high scrotal position, the left testis was tripled in size, the external genitals were markedly developed, and suprapubic hair had been produced precociously. The patient discontinued treatment. A follow-up was not possible. The result of treatment was positive. (Previously reported as case 4.[1a])

CASE 3.—In G. G., aged 3⅓ years (adiposogenital dystrophy due to primary hypogonadism), the left testis was not felt and the right testis suggested itself as a mushy mass at the internal inguinal ring; the external genitals were hypoplastic. The left testis was first felt at the internal ring but was not of firm consistency after three months of treatment with 9,500 rat units. The right testis was felt as a definite mass at the external ring after 2,500 rat units in one and one-half months. After eleven months of treatment with a total of 22,650 rat units of follutein, the left testis was felt past the internal ring and was of firm consistency; the right testis was firm in the midcanal. The penis increased in size to 1⅝ inches (4 cm.); the scrotum was still incompletely formed. The patient discontinued treatment. On examination sixteen months later the status of the left testis was the same; the right testis could be pushed down to the neck of the scrotum. The result of treatment was positive. (Previously reported as case 18.[1c])

CASE 4.—In S. M., aged 10¾ years (adiposogenital dystrophy due to hypothyroidism), the right testis could not be felt and the left testis was hypoplastic in the scrotum. The patient received 33,400 rat units of follutein in eleven months of treatment (distributed over twenty-seven months) and 12,000 international units of amniotin. Although the intra-abdominal testicle could not pass the internal ring, it suggested itself subsequently as a spherical mass on superficial palpation of the right lower quadrant. The left testis was well developed. The penis was enlarged and suprapubic hair was present. A follow-up ten months later showed the genital status to be the same. The result of treatment was negative. (Previously reported as case 22.[1c])

CASE 5.—In M. S., aged 7 years (adiposogenital dystrophy due to hypothyroidism), the right testis was not felt and the left testis was not felt definitely, although some hypertrophied

tissue below the internal ring was suggestive. The penis was infantile and the scrotum was incompletely formed. This was my first case and as such the treatment was rather irregular and was prolonged over a period of four and one-half years. After six months of treatment with 10,000 rat units of antuitrin-S the right and left testes were felt definitely in the canal. At the end of treatment with 20,000 rat units of antuitrin-S in twelve months and with 37,000 rat units of follutein in fourteen months the right testis was the size of a hazel-nut and resident in the scrotum, and the left testis was of the same size in the lower part of the inguinal canal. The external genitals appeared more matured, the penis was enlarged and the scrotum was formed better. The result of treatment was positive. (Previously reported as case 4.[3])

CASE 6.—In R. S., aged 9 years (nonobese, hypothyroid), the left testis was not felt and the right testis was hypoplastic in the scrotum. The scrotum was incompletely formed and the penis was small. The left testis was felt past the internal ring after one and one-half months of treatment with 11,000 rat units. After 37,840 rat units of follutein and 17,000 rat units of A. P. L. in five months, the left testis was the size of a small kidney bean and could be pulled down to the midscrotum; the right testis increased in size, and the penis and scrotum became enlarged and pubic hair appeared. The result was positive.

CASE 7.—In S. R., aged 5¼ years (nonobese, hypothyroid), the right testis was not felt and the left testis was hypoplastic in the canal and could be pushed down into the scrotum. After 2,900 rat units of antuitrin-S the right testis was felt past the internal ring. After 7,300 rat units of antuitrin-S and 6,400 rat units of follutein in three months the right testis was brought down low in the canal, the left testis was increased in size and was fixed in the scrotum. The result of treatment was positive.

CASE 8.—In M. B., aged 10½ years (adiposogenital dystrophy due to hypogonadism), the left testis was not felt and the right testis was migratory; the external genitals were hypoplastic. The left testis was felt past the internal ring after 5,800 rat units was given in eighteen days. After 39,700 rat units of follutein and 31,600 rat units of A. P. L. were administered in a period of seven months, the left testis was found to be the size of a shelled hazelnut and could be pushed down to the neck of the scrotum; the right testis was the size of a shelled almond and became fixed in the scrotum; the penis was enlarged and pubic hair was present. The result of treatment was positive.

CASE 9.—In G. A., aged 11⅔ years (adiposogenital dystrophy due to hypothyroidism), the right testis was not felt; the left testis was hypoplastic in the scrotum. The penis was of fair size; the right portion of the scrotum was undeveloped; suprapubic hair was sparse. The patient received 47,000 rat units of A. P. L., 24,500 rat units of follutein and 7,000 rat units of antophysin, a total of 78,500 rat units in seven months. At the end of that period there was a hypertrophied mass suggestive of the testis past the right internal ring on application of pressure from above. The left testis was increased in size from that of an olive seed to that of a large walnut. The penis became quite matured, and a good crop of suprapubic hair was present. The result of treatment was questionable.

CASE 10.—In S. G., aged 7 years (nonobese, hypothyroid), the right testis was not felt. A scrotal hydrocele with a small testis behind it was found on the left side. The right testis was felt past the internal ring after 9,700 rat units was given in four months. After the administration of 24,900 rat units of antuitrin-S in six months, the apparently absent right testis was definite in the canal while the left scrotal hydrocele became more tense. The result of treatment was positive.

CASE 11.—In R. A., aged 7 years (nonobese, hypogonad [?]), the right testis was not felt. A hydrocele was noted on the right side when the patient coughed. The left testis migrated between the canal and the midscrotum; a hydrocele was also present on the left side. After eleven days of treatment with 1,000 rat units, the hydrocele and testis on the right side descended low in the canal. After 13,500 rat units of follutein in four months, both testes were noted high in the scrotum but were obscured by the tense scrotal hydroceles. Some sparse pubic hair was present. On examination eight months after discontinuation of treatment the hydroceles were less tense, the testes were stationary in the same position and the precocious suprapubic hair had fallen out. The result of treatment was positive.

CASE 12.—In M. L., aged 8¼ years (adiposogenital dystrophy due to hypothyroidism), the right testis was not defined, although some hypertrophied tissue was palpated at the internal ring. The hypoplastic left testis migrated between the scrotum and the canal. The penis and scrotum were undeveloped. After 1,900 rat units was given in one month, the right testis was felt past the internal ring on application of pressure from above. After 36,300 rat units of follutein and 8,800 rat units of A. P. L. in ten months, two testes of equal size were palpated in the scrotum; the penis and scrotum had enlarged and some pubic hair was present. The result of treatment was positive.

COMMENT

As can be seen from the reports of these cases, prior to treatment one patient showed bilateral intra-abdominal cryptorchidism (case 5); the eleven other patients showed unilateral intra-abdominal cryptorchidism and in addition all showed hypoplasia of the external genitals, usually with hypoplasia of the presenting testicle. The age range of these patients was from 3⅓ years to 11⅔ years.

In my experience with these cases of genital maldevelopment, I found that when conditions were such as those in this series, in which no sign of a testicular mass was evident at the outset, one could not know beforehand whether the testicles could be made to descend at all or, if they could be made to descend, how much endocrine therapy would have to be administered before such testicles could be felt on digital palpation.

Examination discloses that the length of time and total dosage for treatment differed in each individual case before any apparent results were attained. Once, however, sufficient and correct amounts had been administered, the apparently absent testicles in most of the cases could be made to respond to treatment. To date descent has been initiated so that they now can be palpated below the internal ring.

While it is true that some patients required only small doses before the testicles could be palpated below the internal ring, I believe that from 4,000 to 5,000 rat units of gonadotropic substance cannot in most cases cause complete descent of testicles. Failure, therefore, for such testicles to appear or to descend after such small doses have been used is not to be considered as conclusive evidence that the cases are nonresponsive to endocrine therapy. I believe, rather, that in such cases, if endocrine therapy was continued in larger doses over more prolonged periods, many such cases would be found to be more responsive to treatment. This can be best demonstrated by case 9, in which 78,500 rat units was required in seven months before a response was evoked.

In the attempt to produce this testicular descent in patients with unilateral intra-abdominal cryptorchidism, not only was this descent provoked in most cases, as can be seen from the case reports, but stimulation of the gonads of the original presenting testicle also inevitably took place. This was evident by the increase in the size of the existing testicle and the development of the external genitals in all cases, regardless of whether or not descent of the intra-abdominal testicle could be provoked. Even in case 1 and case 4, in which no descent of the intra-abdominal testicle could be provoked, and in case 9, in which to date only a mass suggestive of testicular formation can be noted below the internal ring, marked stimulation of the external genitals nevertheless has been induced, although it is

3. Dorff, G. B.: Masked Hypothyroidism in Children: Osseous Development as an Aid in Diagnosis, J. Pediat. 6: 788 (June) 1935.

true that this occurred only after the administration of large doses of gonadotropic factor.

I realize that, while the stimulation of the external genitals has been satisfactory in most of my cases, the testicular development is far from complete. The presence of a testicle or testicles in the inguinal canal, the state of testicular development attained to date for most of my patients, is certainly far from the desired objective; nevertheless I feel that, by continuation of proper therapy, descent probably will be further provoked. This assumption is based on the fact that in the treatment of patients who had inguinal cryptorchidism I have found that sufficient treatment administered for this condition will in most cases usually bring down these inguinal testicles and anchor them in the scrotum.

Of course it cannot be overlooked that there are exceptions and that while in most cases inguinal testicles can and probably will be made to descend there are, I have found, some cases of this kind which, when complicated by other developmental anomalies (some apparent prior to treatment, others not), will fail to respond completely to treatment, because complete descent is being impeded. This I have found true in case 11, in which complete descent is being impeded because of the existence of a marked bilateral hydrocele, present before treatment was begun. While it is true that as a consequence of treatment the hydrocele sac in case 11 did descend from the inguinal canal into the scrotum and that the originally absent testicle could be felt behind this hydrocele, nevertheless further treatment did not make the hydrocele disappear entirely. It is true that with the discontinuance of treatment the hydrocele fluid did become somewhat less, and there was some retraction of the tense processus vaginalis; nevertheless, so far (six months later) it has not disappeared. I am therefore now inclined to believe that this condition, when marked, cannot be corrected with endocrine therapy. On the whole, though, such complications are not too frequent and descent does ensue.

In the attempt to correct such conditions of marked hydrocele as existed in case 11, or in the attempt to correct other stubborn case of cryptorchidism, intensive treatment with gonadotropic substance was found to cause in a number of cases precocious production of suprapubic hair. Patient 11, who was 7½ years of age, referred to as showing marked bilateral hydrocele, was given intensive endocrine therapy, and suprapubic hair developed precociously when treatment with 20,000 rat units within a period of ten months was administered. Testicular descent was accomplished only partially when suprapubic hair developed. The production of suprapubic hair occurred also in several other of the younger boys of this series and outside this series. This seems to have been the only apparent adverse effect that developed as a result of intensive treatment. It is significant to note that with the discontinuance of treatment the suprapubic hair in two of the cases subsequently fell out. This was found to take place in case 11 eight months after treatment for intra-abdominal cryptorchidism had been discontinued. In another patient, aged 4½ years, not in this series, precocious pubic hair fell out three months after treatment for inguinal cryptorchidism had been discontinued. This falling out occurred even though the gonads and the external genitals remained in the same state of development as before treatment had been discontinued, with the exception that there was an abatement of the genital congestion. Whether the same falling out occurred in the other young boys who could not be seen later or whether it will occur in other cases in the future one cannot say, but it is my belief, and it is hoped, that it is not unlikely, since it is certainly to be desired. It can be said, though, that such a falling out does not occur in boys close to puberty.[4]

However, if falling out should not take place, especially in the younger boy, this production of hair, I feel, is objectionable only in that such a growth is not expected before maturity and as such there is the possibility that this might have a psychologic effect on some of the younger boys. In the two cases already mentioned, however, no such effects were apparent.

In any event, the fact that the younger boys are so much better able and so much more likely to respond to endocrine therapy for intra-abdominal cryptorchidism when it is instituted at an early age, and the fact that the institution of this treatment at an early age may, in addition, correct the underlying glandular disturbance, lead me to state that one must risk the possible production of pubic hair and the possible but also questionable psychologic effect which might ensue in some cases. Certainly in view of the promising results attained so far in this series it is not too presumptuous to claim that there is less danger in submitting prepuberal boys to intensive endocrine treatment for intra-abdominal cryptorchidism than to submit these types to multiple operative procedures or to allow them to go untreated. The remote possibility that boys with intra-abdominal testes may respond favorably to endocrine therapy in a comparatively short time without danger of any serious consequences warrants early institution of such treatment without waiting for possible and unlikely spontaneous descent and before attempting surgical intervention which may or may not cause complete descent and which generally does not correct the underlying glandular dyscrasia.

SUMMARY AND CONCLUSIONS

Twelve prepuberal boys, eleven presenting unilateral cryptorchidism and one presenting bilateral cryptorchidism, with ages ranging from 3 years and 4 months to 11 years and 8 months, were treated for cryptorchidism with gonadotropic principle from the urine of pregnant women. Doses in most cases were large and were given intensively over extended periods.

Two of the cases in this study showed no response and therefore their treatment was discontinued. Nine other cases responded definitely as a result of the administration of varying amounts of the substance, so that finally testicles in the inguinal canal were palpated below the internal ring. The twelfth case, while not showing such definite development, did show evidence of response after a very large amount of gonadotropic substance (78,500 rat units) was given over a prolonged period (seven months) so that finally the presence of a mushy mass, suggestive of testicular formation, could be felt below the internal ring.

Several facts may be evolved from this study:

1. The amount of gonadotropic substance and the length of treatment varied; a few patients required comparatively small amounts over a short period; most, however, required much more gonadotropic substance and a longer time.

4. It might be of interest to mention that in the large number of cases of genital underdevelopment which has come within my notice when suprapubic hair was present in quantity in such boys the suprapubic hair was noted frequently to be heterologous in formation. This was also noted in boys closer to puberty in whom suprapubic hair was produced as a result of treatment with gonadotropic substance. I intend to follow up such cases to note whether or not this formation will correct itself as these boys advance in age.

2. When no developmental anomalies existed to impede descent, testicular formation could be initiated and descent into the inguinal canal could be actuated in most cases of intra-abdominal cryptorchidism with varying amounts of gonadotropic substance.

3. Although in the present series of intra-abdominal cryptorchidism complete scrotal descent and fixation is still lacking and testicles have at present reached only the inguinal canal (in case 12 the testicles are in the scrotum), my past experience with cases of inguinal cryptorchidism makes me feel that sufficient additional endocrine therapy in due time will probably produce complete descent and fixation in the scrotum in some of my cases of intra-abdominal cryptorchidism, just as it did in my cases of inguinal cryptorchidism.

4. When impediments such as marked hydrocele accompanied intra-abdominal cryptorchidism and existed before treatment, as in case 11, endocrine therapy could cause the intra-abdominal testicle to descend from the abdomen but it could not correct the hydrocele. (A contrary opinion in a previous communication, to the effect that marked hydrocele could be corrected by treatment with gonadotropic substance, must be held in abeyance until further study is made in other such cases presenting marked hydrocele.)

5. In all the cases of unilateral cryptorchidism in this series, even when descent of the intra-abdominal testicle could not be actuated, the existing hypoplastic gonad and external genitals were developed through the use of gonadotropic substance to the point of apparent normality, and even in some to the point of hypertrophy of the external genitals.

6. The only seemingly adverse effect resultant from intensive treatment was the precocious production of suprapubic hair in some of the younger boys. While this precocious production of hair was not desirable, I found that my patients did not show apparent psychologic effects or any manifestations of a precocious nature.

7. This growth was temporary in one boy aged 7½ years of this series and in one aged 4½ years not of this series; follow-ups show that these precocious pubic hairs had fallen out after treatment had been discontinued for several months. It can be said also that suprapubic hair once produced through treatment in the boys closer to puberty did not fall out.

8. I believe that, even at the possibility of producing precocious suprapubic hair, endocrine therapy should be instituted early in boys showing intra-abdominal cryptorchidism, because the response is much more readily attained and is much more successful in those who are younger than in those boys who are approaching or who have passed the puberal age.

9. Intensive endocrine therapy in all cases of intra-abdominal cryptorchidism should be attempted without waiting for spontaneous descent and before attempting surgical intervention; there is certainly less danger.

ADDENDUM.—Since this manuscript was written the opportunity for a check-up on several of the cases in this series presented itself and the following was noted:

In case 5 a reexamination sixteen months after discontinuation of treatment (at age 12½ years) revealed two firm, good-sized testicles in the scrotum.

In case 11, an operation for bilateral hydrocele was successfully done two months after discontinuation of endocrine treatment. Both testicles were in the scrotum and were of good size and consistency.

In case 12, ten months after discontinuation of treatment, both testicles were still resident in the scrotum.

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TREATMENT OF WOUNDS RESULTING FROM DEEP BURNS

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Deep burns on the average constitute the largest number and, because early adequate help is so frequently lacking, are also the most neglected of all wounds amenable to surgery. Because of this, hospitalization and the wound-dressing period are unnecessarily prolonged and often followed by months, years or possibly a lifetime of discomfort or disability pending a belated surgical repair. This and much to follow is based on a series of 340 late burns treated since 1918 in which the average time that elapsed between injury and inauguration of surgical repair was 5.1 years.[1] The aggregate period of disability in this group from the time of injury until final discharge was 2,312 years, or an average of 6.8 years. These required 1,037 repair operations, with an average treatment and observation period of 1.7 years per case.

Increased expenditure adds to the economic hardship, which approximates tragedy when it is the earning power of the breadwinner that is at stake, while incidentally an employer may be deprived of needed services, and somebody must pay the too often inadequate compensation specified for industrial accidents by state law.

During the first several weeks after the infliction of the injury it is unnecessary and often impossible to distinguish between partial and full thickness destruction of the skin, but areas of both degrees are commonly present in almost every extensive burn. The primary consideration during this early period, and possibly for months later, is the immediate problem of saving life and of fending the vital organs and nervous balance. The greatest help will come from controlling pain, worry and infection. This most critical time having been successfully bridged, active steps for surgical repair are in order, and, if carried out judiciously in accordance with the needs and condition of the patient, these should from the first facilitate rather than prejudice the earlier objectives enumerated.

To the general practitioner, who as a rule first sees the isolated major burns and who bears the brunt of responsibility during that most trying and difficult period, should be given the credit of a life saved when the patient survives until active surgical repair can be safely undertaken. He is the unsung hero of the catastrophe and for him both respect and admiration are due. However, our observation of the cases cited rather forced the conclusion that opportunities for early repair had not been adequately met in the great majority of instances; this is commonly due to the lack of realization either that what was a burn has changed to a granulating wound or that the closure of this residual wound could be materially hastened by appropriate surgical attention. Either leads to the continuation of a simple dressing treatment long after active surgical repair could very advantageously have been done.

1. Of these, 290 were patients treated in the Plastic Surgery Service in Barnes, St. Louis Children's, and St. Louis Mullanphy hospitals, to which are added, through the courtesy of Dr. J. B. Brown, fifty of his own patients treated at the St. Louis Shriners' Hospital for Crippled Children.

On the depth of the extensive burn will largely depend the amount of time and the kind of effort to be expended on the repair. In second degree burns, at least, scattered deep-lying islands of epithelium will survive from which rather prompt spontaneous coverage will occur with relatively little deep scarring. In these as in any other cases of destruction of the superficial epithelium, regardless of cause, there is no essential relationship between healing time and size of the defect, and, provided the area remains clean, this kind of healing is not greatly influenced by the type of treatment employed. On the other hand, after total destruction of the skin the manner and course of healing are quite different. Here spontaneous repair is of much later occurrence and is accomplished by three distinct but somewhat overlapping processes: First, the raw surface is gradually covered by granulations; second, the deeper and older layer of these granulations takes on the character of contracting scar, which draws in the surrounding skin and superficial fascia, thus lessening the actual surface area to be repaired; third, after some days, weeks or months, earlier under proper treatment, epithelization of the remaining raw surface starts with a visible ingrowth of the surrounding skin, and perhaps from scattered epithelial remnants. Putting it another way, the spontaneous coverage of a large or of a small second degree burned area, other conditions being equal, will occur in about the same length of time, just as two neighboring grain fields will produce their entire crop simultaneously, regardless of relative size.

However, given two large third degree burns of similar circumstances but of differing size, the healing time, the resulting permanent disfigurement and the disability of each will differ, and the difference will not be in direct proportion to the diameters of the two raw areas but more nearly to the square of these diameters. For instance, as a rather loose estimate, say that a defect 2 inches in its least diameter might require four weeks for complete healing; then the spontaneous healing time for a similar wound from a burn 4 inches in diameter might be sixteen weeks, while one of a 12 inch diameter might not heal in 144 weeks. Examples of raw surfaces having persisted for from three to thirteen years or more after a burn are not lacking in our series. In contradistinction to the second degree burn, the time at which surgical repair of extensive third degree burns can be advantageously undertaken will in most cases be very largely influenced by the type of local and general care that was administered from the time the burn occurred.

TABLE 1.—*Site of Burn in Three Hundred and Forty Cases*

	Cases in General	One or Both Hands	Head or Neck or Both	Hands and Head and/or Neck	Arms, Legs, Trunk
	340	59	160	31	88
Average period of observation	1.7 yrs.	1.05 yrs.	1.4 yrs.	2.2 yrs.	0.88 yr.
Average age of lesion when first seen	5.1 yrs.	3.03 yrs.	7.4 yrs.	4.6 yrs.	4.1 yrs.
Average number of operations	3.05	2.9	3.7	5.1	2.2

The great majority of surface burns do not quite destroy the full thickness of the skin and, as already pointed out, healing will therefore occur spontaneously in what appears to be a reasonable time, regardless of the type of treatment used. Because of this, the public and many of the profession, partly as a matter of convenience and partly because of inherent virtues, have rather the habit of relying chiefly on the application of some favorite prescription or pharmaceutical and of ascribing the cure of the burn chiefly to its use. Neither this practice nor the inference will be harmful to the patient, provided some of the deeper part of the skin remains everywhere intact. However, when the foregoing or any other plan of expectant treatment is entirely relied on in the care of the less frequently occurring large deep burn, the patient is just plain out of luck. We might cite from our series the case of a husky young workman of limited means who had been deeply burned on the thighs and legs some eighteen months previously and had been bedridden or on crutches ever since. According to the statement of the patient and of his family physician, the local treatment had from the first been chiefly the use of a widely advertised and commonly used unguent preparation containing antiseptics and emitting a strong odor, the purchase of which had cost the patient, his family and his relatives to the date of his visit here somewhat more than $1,200. When he came to us the persisting raw surface seemed still to be about a half or a third the size of the area originally destroyed. We were able to release the contractures, and his wounds healed completely and permanently by three skin-grafting operations, each of which required ten days postoperative treatment, though with necessary preoperative care and an intervening appendectomy his total hospitalization was fifteen weeks.

TABLE 2.—*Causes of Burns in This Series*

Clothing caught fire: Playing with matches, Christmas tree candles, burning buildings, bonfires	65
Gasoline and naphtha explosions	33
Fell against hot stove or furnace	20
Fell in open fireplace	18
Fell in boiling water or spilled hot water or hot coffee	17
Kerosene explosion: Starting fires in stoves	13
Miscellaneous: gasoline stove polish, 2; powder explosion, 4; hot lard, 2; rope burn, 2; lightning, 1; hot water bottle, 2	13
Chemical explosions—acids	12
Celluloid combs in hair catching on fire	10
Fire from automobile or bus accident	9
Electric wires, high voltage, fuse explosion	9
Mangle, 7; steam pressure mangle, 1	8
Gas and mine explosions	8
Fireworks	8
Putting end of electric cord in mouth	8
Lye	7
Burned by facial treatment, 2; electric needle to remove hairs from face, 3; paste for removing growth on face, 1; surgical wet dressing, caught fire, 1	7
Cause not given	75
	340

The preceding comments are not pertinent to tannic acid or any other medication when used to help carry the patient or to add comfort and prevent infection preparatory to a surgical repair when the proper time arrives, but, regardless of their potential usefulness, their use may be susceptible to costly abuse. The application of a chemical or drug in the treatment of a deep burn can at best constitute but one element of a rather intricate surgical procedure. Some of the worst conditions we encounter of late wounds resulting from burns have come from the misuse of a coagulant, usually tannic acid, without proper technic or follow-up. Unless meticulous care is given the wound resulting from a burn, the granulations early become deeply infected, as evidenced by the long persistence of rough corded or

ridged keloid scars. With slow spontaneous healing the scar thickens, sometimes enormously, while progressive contraction and occasionally coalescing of opposed raw surfaces cause fixation and distortion, though they do decrease the raw area. Spontaneous epithelization of these maturing scars becomes progressively retarded, and the layer of this new coverage becomes quite thin and unstable, so that even after complete healing it may be repeatedly lost from diffuse hemorrhage into the deeper layers of the scar, from some local or general indisposition of the patient or from any slight trauma. The development of cancer in these old scars has occurred as late as fifty years or more after healing.

Active surgical repair of a deep burn of any considerable size should be initiated as early as practicable in the healing period and aims at permanent skin coverage of all raw surfaces done at one or several operative steps. This may be done completely by using large split grafts, or partially with scattered small grafts that serve as foci from which epithelization spreads in all directions; but either way it should be done with the least possible disturbance to an already sick patient. Usually the patient can be gotten in fair condition before this is attempted, but sometimes very simple types of grafting are done in the hope of giving a step-up to a patient who is making poor headway. The judiciously treated patient is usually easy to handle and has little fear of the dressing; this is more true with children than with adults. There are, however, a few—likely a very few—who will for some time survive the immediate shock and subsequent confusion that follow a large deep burn but will make no proper response to nursing, care of the wound, blood transfusions or skin grafting, and eventually fade out regardless of the care given. Occasionally we have, as a temporary measure, resorted to the use of homografts taken from a parent. Apparently, though we have never seen such grafts persist for more than three weeks, they seem to stimulate a more spontaneous epithelization and may be quite helpful in breaking a vicious circle that threatens to carry off the patient. If the burn were treated by primary excision of the dead tissue, grafting might be done immediately, the patient's general condition permitting, or later when the granulations and the patient become fit. When grafts are applied at this early period to an extensive raw surface no special attempt is made to correct contractions that have already occurred, but a successful take should greatly limit further distortion and enable one to measure the healing period in terms of days rather than of weeks or months or even years.

The chief point in the late correction is the liberation of false union and elimination of binding scars. This can usually be done by excising scar areas down to their deepest elastic layer, immediate application of large split thickness skin grafts, full thickness grafts or a sliding or pedicled flap. There is little to be gained by the attempt to grow skin grafts on a granulating area of years' duration without first removing the granulations and the underlying scar, which latter may be from a fourth to a half inch thick. Much late grief and multiple operations can be avoided by early successful skin coverage. By this procedure we have been able to put a breadwinner back on his job entirely healed within seven weeks after a burn that totally destroyed more than 150 square inches of skin.

In our series of surface burns, regardless of size, the total period of observation was 0.88 year as contrasted to 2.2 years of observation for the complicated structures, namely, hands, face and neck.

Properly handled, children with relatively larger losses are cared for with still greater ease. These early, sometimes makeshift, repairs may not be the final answer in the individual case but at least they will, besides shortening the convalescence, avoiding much suffering and conserving the nervous balance, very much simplify the final restoration and may prevent permanent incurable disabilities. Most important of all is the proper early care and coverage of deep burns of the back of the hand and fingers. Here the tendons and joint capsules lie almost immediately beneath the skin. Few hands that have been allowed to heal spontaneously, having remained uncovered for months or having been allowed to rest in full extension or with the weight of the flexed hand resting on the tips of the fingers, can ever be restored to anything like normal usefulness.

Metropolitan Building.

GONOCOCCIC MENINGITIS

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Twenty-seven cases of meningitis supposedly due to the gonococcus, reported before 1909, have been reviewed by Henderson and Ritchie.[1] Bradford and Kelley[2] have summarized twenty cases reported since that time and added another which they themselves encountered. Strumia and Kohlhas[3] have cited thirty-eight reports. All these authors have pointed out that proof of the identity of the causal organism with the gonococcus has not been offered in all cases and that a few of the diagnoses were made on circumstantial evidence. Most of the reported cases fall roughly into two groups: meningitis in adults accompanying or following gonococcic infection of the genital tract, and meningitis in newborn infants following infection at birth. In an occasional instance the meningitis followed a septicemia without any other apparent focus of gonococcic infection.

The National Institute of Health at Washington, D. C., has for several years past been making a special study of meningococcic infections and has received a large number of cultures taken in such cases for identification and typing. Ten of the 500 cultures received to be typed as meningococci during the past two years have been found to be gonococci. One of these cases is of such unusual interest that a report of it seems definitely indicated. It represents a simple, uncomplicated primary meningitis without any other focus of gonococcic infection and with a history in which there was, so far as could be determined, no known opportunity for infection.

Read before the Society of American Bacteriologists, Washington, D. C., Dec. 29, 1937.

1. Henderson, G., and Ritchie, W. T.: Gonococcal Meningitis, Rev. Neurol. & Psychiat. **7**: 75-87, 1909.
2. Bradford, W. L., and Kelley, H. W.: Gonococcic Meningitis in a New-Born Infant, Am. J. Dis. Child. **46**: 543-549 (Sept.) 1933.
3. Strumia, M. M., and Kohlhas, J. J.: Gonococcic Meningitis, J. Infect. Dis. **53**: 212-218 (Sept.-Oct.) 1933.

REPORT OF CASE

History.—B. M., a white girl, aged 16, well nourished and well developed, felt perfectly well until Sept. 8, 1937, when a headache and a feeling of lassitude and drowsiness developed. The headache became more pronounced and the next day it was accompanied by backache and stiffness of the neck and legs. She vomited once. Her family physician (W. B.) was called September 10, the third day of the illness. At this time she had a temperature of 103 F. (oral) and a pulse rate of 96. There was marked stiffness of the neck, and both the Kernig and the Brudzinski sign were positive. The knee jerks were somewhat exaggerated. Aside from these manifestations the physical examination was negative.

A spinal tap was done and the spinal fluid was found to be very cloudy and under markedly increased pressure. About 45 cc. was withdrawn and 30 cc. of polyvalent antimeningococcus serum was given intraspinally. The patient was then taken to the Gallinger Hospital, where a complete physical examination confirmed the observations of her family physician earlier in the day. The cell count of the spinal fluid was 6,100, with 95 per cent polymorphonuclear leukocytes. The patient was acutely ill but quite rational and cooperative and not especially toxic.

Vaginal smears made on admission were negative for gram-negative cocci.

A cutaneous test revealed a marked sensitivity to horse serum, so it was decided (R. H. M.) not to give more antimeningococcus serum but to treat the patient with sulfanilamide alone. She was given 50 grains (3.2 Gm.) on admission and 20 grains (1.3 Gm.) every four hours for three days, 15 grains (1 Gm.) four times on the fourth day, and 10 grains (0.6 Gm.) four times for the next five days. Beginning with the day after admission (September 11) she was given 30 cc. of an aqueous solution of 1 per cent sulfanilamide intraspinally daily for four days. She received a total of 620 grains (40 Gm.) of sulfanilamide by mouth during eleven days and 105 cc. of 1 per cent sulfanilamide intraspinally during four days.

The temperature was 103 F. on admission and the next day but it then dropped to normal and remained there. The cell counts of the spinal fluid on the first five days of hospitalization were respectively 6,100, 2,000, 1,200, 310 and 170, after which time it was perfectly clear in appearance and pressure was normal. Intracellular gram-negative diplococci were found in the first three samples but in none thereafter. A preliminary diagnosis of meningococcic meningitis was made.

On the ninth day some urticaria and slight swelling of the hands and feet developed. These did not subside immediately after the administration of epinephrine, and there was some question as to whether this rash represented a serum reaction to the one 30 cc. dose of antimeningococcus serum or whether it was due to the sulfanilamide.

Recovery was rapid and uneventful. She sat up the twelfth day after admission to the hospital and was discharged on the sixteenth day (September 26).

The patient was nearly well before the identification of the causal organism as a gonococcus seemed certain. Its similarity to the gonococcus was evident much earlier, but there was nothing in the history to suggest its presence. There was no sign or history of gonococcic infection of any sort; the patient was a virgin and had no history of exposure. There was no gonococcic infection or history of such in her immediate family.

Bacteriologic Study.—Direct smears from the spinal fluid showed gram-negative cocci of typical neisserian morphology both inside and outside of the leukocytes. Cultures were made on rabbit's blood agar plates and in semisolid hormone agar. Growth appeared after forty-eight hours. In the semisolid agar a very delicate pellicle formed and on the blood agar a fine delicate growth of small translucent, discrete colonies occurred, quite characteristic of the gonococcus in appearance. This strain fermented dextrose readily but not maltose or any other sugar tested. It was agglutinated in a dilution of 1:200 in both polyvalent antimeningococcus serum and antigonococcus serum, but not by any of the type antimeningococcus serums. The result of the Thomson alkali solubility test described by Pelouze[4] was typical of the gonococcus. The culture and a sample of the patient's serum were sent to Dr. Carpenter at Rochester, N. Y. He found a complement fixation test with the serum for gonococcic infection to be 3 plus and the culture itself to be agglutinated in a dilution of 1:1,280 of antigonococcus serum and only 1:80 in the antimeningococcus serum that he had. There seems every justification for considering the micro-organism in question to be a gonococcus.

Bacteriologic Studies of Other Strains.—During the past two years ten of the cultures that have been sent to the senior author to be typed as meningococci have apparently been gonococci. Five of these were taken from spinal fluid of patients with meningitis, and five were taken from blood. With all ten strains colony formation and type of growth on blood agar were typical, dextrose alone was fermented, and all were agglutinated well by both antimeningococcus and antigonococcus serums, though to varying degrees. Most strains were completely dissolved in the alkali solubility test, whereas others were no more soluble than the meningococci used as controls.

The Source, Fermentation and Serologic Reaction and Alkali Solubility of Fourteen Strains of Gonococci*

Case	Source	Fermentation		Meningococcus						
		Dextrose	Maltose	Gonococcus Polyvalent	Polyvalent	Type I	Type II	Type III	Type IV	Alkali Solubility
1	Sp. fluid	+	—	4442	4420	0000	0000	0000	0000	Complete
2	Sp. fluid	+	—	4220	4321	1000	4432	4310	4420	Complete†
3	Sp. fluid	+	—	3210	2200	1000	2210	0000	0000	Partial†
4	Sp. fluid	+	—	2110	2221	1000	4321	3110	2100	Partial
5	Sp. fluid	+	—	4432	4442	2111	4444	4321	3111	Partial
6	Blood	+	—	4310	4432	4110	4443	4310	4310	Complete†
7	Blood	+	—	3222	3332	3000	4321	2110	2110	Partial
8	Blood	+	—	4321	4443	2100	4432	1110	1110	Partial†
9	Blood	+	—	3322	3333	4320	4433	4310	4300	Partial
10	Blood	+	—	4432	3332	4432	4432	3310	3310	Complete
11	Joint	+	—	3333	3333	3211	4443	3321	3221	Partial†
12	Urethra	+	—	4442	4444	4210	4443	1100	1000	Complete
13	Eye	+	—	3321	3321	1000	0000	0000	0000	Partial
14	Eye	+	—	4432	4444	2100	4332	3310	3311	Partial
15	Meningococcus I	+	+	3210	4444	4444	0000	2100	0000	Partial
16	Meningococcus II	+	+	4420	4444	2100	4443	1100	1000	Partial

* In the columns giving the serologic reactions, 4 indicates complete agglutination, 0 no agglutination, 1, 2 and 3 degrees of agglutination.

† These patients had a definite history of previous gonococcic infection of the genital tract

The most interesting feature was the reaction of these strains with meningococcus typing serums. Three of the five strains from the spinal fluid were agglutinated well by type II serum, though there was some degree of "crossing" with group I-III. Three of the five strains from the blood were also well agglutinated by type II serum, and the other two were agglutinated equally well by types I and II serums.

The question naturally arose How can one be sure that these are gonococci? What is a gonococcus, and what criteria may safely be used for its identification?

Known gonococci for comparative study were sent to us by Dr. Carpenter—two strains from the eye and one strain from the urethra. We obtained another from an arthritic joint. These and our ten blood and spinal fluid strains were studied with regard to type of growth, colony form, fermentation, serologic reaction and alkali solubility. These cultures were found to be indistinguishable from one another. Delicate growth on blood agar and small, translucent convex colonies were alike in all and were distinctly different from the more luxuriant growth of the meningococcus. Dextrose was readily fermented by all, but no other sugar was. All were often agglutinated by polyvalent antimeningococcus serum as well as by antigonococcus serum. Nearly all were agglutinated more strongly by type II antimeningococcus serum than by the other type serums, though there was considerable cross agglutination with some. The strain from the patient whose case

4. Pelouze, P. S.: Gonorrhea in the Male and Female, Philadelphia, W. B. Saunders Company, 1931.

is reported here and one strain from the eye in another case were the only two that were not agglutinated by type serums.

In the alkali-solubility test of Thomson described by Pelouze [4] the gonococcus is usually instantly and completely dissolved, leaving a completely clear solution. Meningococci are partially dissolved but the stroma remains, leaving an opalescent fluid. Micro-organisms such as streptococci and staphylococci are untouched in the dilution of alkali used. The strains that we studied did not behave identically in this test. Five of the thirteen strains were completely and instantly dissolved, a clear, yellowish solution being left. These included two from the spinal fluid, two from the blood and one from the urethra. The eight remaining strains dissolved partially, leaving an opalescent fluid and some stroma, the reactions more nearly approaching those of the meningococci included in the test for comparative purposes.

The accompanying table summarizes the source of these strains, the characteristic fermentations, the serologic reactions and the alkali solubility.

COMMENT

Of 500 cultures sent to us during the last two years to be typed as meningococci, ten (or 2 per cent) have been found to be gonococci; one half of these, or 1 per cent, have been from spinal fluid and the other 1 per cent from blood. A complete detail of the history was not available in some of these cases, but it is definitely known that in five cases (2, 3, 6, 8 and 11) the meningeal or blood stream infection followed gonococcic infection of the genital tract. It is usually assumed that meningitis due to the gonococcus is secondary to gonococcic infection elsewhere. But in two of four patients who were observed by us, there was neither evidence nor history of other gonococcic manifestation obtainable. Both of these patients were young women—one the case described in this paper (case 1) and the other a nurse who had what seemed to be a primary gonococcic septicemia without meningeal involvement (case 7).

How can one be sure that the micro-organism in question is the gonococcus? What tests can be applied that definitely differentiate the gonococcus from the meningococcus?

Certain it is that our ten strains which appeared to be gonococci were indistinguishable in any way from those strains which had been isolated and identified as gonococci by workers who were experienced with that group of bacteria and that they differed in several respects from the many strains of meningococci which have been studied by us. How constant and how dependable are these differences? Cultural features and the type of colony were the most fundamental and typical differences that we have found. The persistently delicate growth and very small translucent colonies of the gonococcus have never been encountered by us with meningococci. The meningococcus is much more luxuriant and the colonies are larger.

Next in importance are the fermentation reactions. It has been well known for a long time that gonococci will ferment dextrose but no other sugars, and those which we have studied have followed this rule without exception. Among the approximately 1,000 strains of meningococci that have passed through our hands during the last ten years only four have seemed to ferment dextrose only, as does the gonococcus. It is possible that these may ultimately ferment maltose also, as other meningococcus strains have been inactive in this respect at first. At the time when a diagnosis is being made this failure of some strains of meningococci to cause characteristic fermentation may occasionally be confusing. Nevertheless, nearly all workers in this field are agreed that the fermentation reactions are one of the most reliable aids in the identification of the gonococcus.

We have found the alkali solubility test of Thomson to be of definite value, though it is not an absolute criterion. Complete and rapid solution of the culture suspension has invariably indicated a gonococcus, though not all gonococci have given this complete reaction, as shown in the table.

Serologic methods of differentiation have not been satisfactory. Complete fixation with a patient's serum is indicative of infection with some member of the genus Neisseria and it is not species specific. Gonococci are well agglutinated by polyvalent antimeningococcus serum and usually by type serums. There is apparently an especially close relationship between gonococci and type II meningococci. This is especially interesting when the epidemiology of these infections is considered. During the last twenty years epidemics and small explosive outbreaks of meningococcic meningitis have been due chiefly to strains of the I-III group, whereas the cases due to type II have been sporadic. There has been a tendency for such cases to be milder and less responsive to treatment with antimeningococcus serum.[5]

CONCLUSIONS

It seems likely that gonococcic meningitis is much more common than it is usually supposed to be. Hospital laboratories are usually much too busy to carry the identification of the causative micro-organism to completion, and a gram-negative coccus of typical morphology which occurs intracellularly and extracellularly in the spinal fluid, and which is agglutinated by antimeningococcus serum, is usually assumed to be a meningococcus. Even when the study is carried further, definite criteria for the identification of the gonococcus are not well established and its identification is not easy. An absolute criterion is lacking. Nevertheless, a careful study of cultures with consideration of all of their characteristics—type of growth, colony form, fermentation reactions, alkali solubility and serologic reactions—will make an experienced worker feel quite sure of the identity of the strain in question.

Although gonococcic meningitis is usually secondary to gonococcic infection elsewhere, the case reported in this paper suggests that the gonococcus must be considered a potential cause of a primary meningitis without other gonococcic involvement.

National Institute of Health.

5. Since this paper was written we have observed three additional cases of gonococcic meningitis and have studied the cultures obtained from them. In all three of these cases there were histories of previous gonorrheal infection. The following additional reports of cases of gonococcic meningitis have appeared in the literature:

Marvin, H. P., and Wilkinson, W. E.: Gonococcic Meningitis: Results of Treatment with Sulfanilamide, J. A. M. A. **110**: 800-802 (March 12, 1938.

Steiner, W. R.: Gonorrheal Meningitis, with Report of a Case and Review of the Literature, Tr. Am. Clin. & Climat. A., 1937, p. 1.

That Strange Genius, Paracelsus.—Here and there men of science could be found groping through the thick fogs of ignorance, fear and superstition that enshrouded in mystery the phenomena of mental disease. Among the earliest of these was that strange genius, Paracelsus, dabbler in alchemy and astrology, an eccentric and braggart—and a great physician. Before meeting death in a tavern brawl in 1541, Paracelsus had rendered medical science a great service by repudiating galenism and the humoral pathology that had dominated medical practice for more than fifteen centuries. He ridiculed the notion of demoniacal possession.—Deutsch, Albert: The Mentally Ill in America, New York, Doubleday, Doran & Co., Inc., 1937, p. 21.

THE "COLD PUNCH" TYPE OF PROSTATIC RESECTION

SIX YEARS OF PROGRESS

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The principle of removing obstructing prostatic tissue through the urethra by means of a cold, cutting, tubular knife sliding in an outer fenestrated sheath was given its first serious trial in the Young punch.[1] The principle was further carried on in the Braasch "median bar excisor."[2] For obvious reasons neither instrument was adapted for the removal of substantial amounts of prostatic tissue and neither provided adequate means for hemostasis. The first "cold cutting" resectoscope that overcame these difficulties was the Braasch-Bumpus resectoscope.[3]

Although a few prostatic resections were done each year for several years previous to 1930, it was not until 1931 that they were done in enough volume at the Mayo Clinic to assume importance. The subsequent rapid rise of this type of surgery has been phenomenal, as is demonstrated by the fact that at the Mayo Clinic in 1931 ninety-nine resections were done on eighty-seven patients, while, in 1936, 835 resections were performed on 749 patients. In 1931 transurethral resection accounted for 40 per cent of the year's prostatic surgery, while in 1936 it accounted for 99.6 per cent of the year's prostatic surgery. For the six years from 1925 to 1930 inclusive, an average of 255 patients a year were subjected to prostatectomy; in 1936, 749 patients were subjected to transurethral resection. This suggests that the fear of prostatic surgical operations is decreasing and patients are seeking earlier relief.

During the period of six years 1931 to 1936 inclusive transurethral surgery had been rapidly improving, and each year the operation was being performed better than in the previous year, owing to improvement in technic and in instruments and to better knowledge of the surgical principles involved. Several axioms of suprapubic and perineal prostatectomy have had to be unlearned in performing transurethral resection;[4] important among these is the teaching regarding preoperative preparation. For instance, whereas formerly drainage by catheter for ten days was insisted on almost as a routine in cases in which suprapubic drainage was not immediately established, today drainage by catheter is employed only if nitrogen is retained in the blood. Drainage by catheter is terminated just as quickly as the concentration of blood urea can be reduced to 50 mg. per hundred cubic centimeters or less. For the same reason the incidence of preliminary suprapubic drainage has steadily declined, as is shown by the fact that in 1933 preliminary suprapubic cystostomy was performed on twenty-eight of the 451 patients subjected to transurethral resection, whereas in 1936 it was performed on only eleven of the 749 patients who were subjected to this type of resection.

Another striking observation over this period of six years is the increase in the number of patients of advanced age who were subjected to operation. This can be explained by the fact that there are accepted for transurethral resection patients who present a poorer risk than that presented by patients who formerly were accepted for prostatectomy and that men whose physicians formerly would have advised against their seeking surgical relief because of their advanced age are being referred for operation. Evidence of the increasing number of older patients can be seen in table 1. It will be seen that of patients subjected to prostatectomy 20.5 per cent were 70 years of age or older and only 1.2 per cent were more than 80. Of the patients subjected to transurethral resection, 31.7 per cent were 70 years of age or more, whereas 3.9 per cent were more than 80.

The average period of postoperative confinement in the hospital remains almost constant, year after year, at about eight days. The mortality rate, although it fluctuates from year to year, continues to be low, as is shown in table 2.

Probably the most important recent advance in transurethral prostatic resection is that larger amounts of prostatic tissue than formerly are being removed. When transurethral surgery began, it was thought necessary to cut only a "channel" or "gutter" through the prostatic urethra. This channel soon was found to be inadequate. Later it was felt that, if all the obstructing tissue of the median lobe and the intravesical portions of the lateral lobes were removed, the remaining

TABLE 1.—*Patients of Various Ages Who Underwent Prostatectomy (Suprapubic and Perineal) from 1925 to 1930 Inclusive and Other Patients of the Same Ages Who Underwent Transurethral Prostatic Resection from 1931 to 1936 Inclusive*

	Age Group, Years	1925		1926		1927		1928		1929		1930		Total	Per Cent
		Patients	Per Cent	Patients	Per Cent	Patients	Per Cent	Patients	Per Cent	Patients	Per Cent	Patients	Per Cent		
Prostatectomy	Under 70	201	78.9	197	79.8	206	79.8	221	83.4	207	76.4	183	87.6	1,215	79.5
	70-79	48	18.8	49	19.8	50	19.4	43	16.2	59	21.8	46	19.7	295	19.3
	80-89	6	2.3	1	0.4	2	0.8	1	0.4	5	1.8	4	1.7	19	1.2
	90-99	0	...	0	...	0	...	0	...	0	...	0	...	0	...
	Total	255	100	247	100	258	100	265	100	271	100	233	100	1,529	100
		1931		1932		1933		1934		1935		1936			
Transurethral resection	Under 70	77	88.5	222	78.7	299	66.2	438	69.6	449	64.6	490	65.4	1,975	68.3
	70-79	10	11.5	56	19.9	137	30.4	176	27.9	208	29.9	218	29.2	805	27.8
	80-89	0	...	4	1.4	14	3.2	16	2.5	37	5.3	40	5.3	111	3.8
	90-99	0	...	0	...	1	0.2	0	...	1	0.2	1	0.1	3	0.1
	Total	87	100	282	100	451	100	630	100	695	100	749	100	2,894	100

From the Section on Urology, the Mayo Clinic.

1. Young, H. H.: A New Procedure (Punch Operation) for Small Prostatic Bars and Contracture of the Prostatic Orifice, J. A. M. A. **60:** 253-257 (Jan. 25) 1913.
2. Braasch, W. F.: Median Bar Excisor, J. A. M. A. **70:** 758-759 (March 16) 1918.
3. Bumpus, H. C., Jr.: Punch Operation for Prostatic Obstruction, S. Clin. North America **7:** 1473-1478 (Dec.) 1927; Hypertrophy of the Prostate Gland, in: Minor Surgery of the Urinary Tract, Philadelphia, W. B. Saunders Company, 1932, chapter 4, pp. 41-59.
4. Emmett, J. L.: Changing Conceptions of Indications for Surgical Relief of Prostatic Obstruction, Am. J. Surg. **34:**216-220 (Nov.) 1936.

intra-urethral portions of the lateral lobes would cause no difficulty for the patient. The results with this type of resection were entirely unsatisfactory and the patient continued to suffer with residual urine, dysuria and urinary infection. It soon became evident that all the intravesical tissue, and as much of the intra-urethral tissue as possible, should be removed. Symptoms of obstruction recurring in from one to two years were found to be due to the removal of an insufficient amount of tissue at the first operation.

TABLE 2.—*Mortality Rate of Transurethral Prostatic Resection for the Six Years from 1931 to 1936 Inclusive*

Year	Patients	Resections	Deaths	Mortality Rate: Per Cent of Patients	Mortality Rate: Per Cent of Resections
1931	87	99	5	5.7	5.1
1932	282	321	0	0.0	0.0
1933	451	513	5	1.1	1.0
1934	630	696	2	0.3	0.3
1935	695	765	7	1.0	0.9
1936	749	835	11	1.5	1.3
Total	2,894	3,229	30	1.0	0.9

When the procedure is transurethral prostatic resection, we have always felt at the clinic that the patient should not be subjected to a longer period of operation than one hour. If the period of operation is extended, the operative risk becomes unduly high. It is much preferable, when a large prostate gland is encountered, to subject the patient to a second resection from five to ten days after the first than to prolong the operation. With the Braasch-Bumpus resectoscope, because of the number of technical steps required to remove each bite of tissue, from 30 to 45 Gm. of tissue is about the maximal amount that can usually be removed in from fifty to sixty minutes by an experienced surgeon. Often, in operating on a moderately large prostate gland, this gives a good functional result even though considerable tissue remains. With such a satisfactory functional result the surgeon hardly feels justified in advising, and the patient is loath to accept, a second resection to remove the remaining tissue. A small percentage of the patients will return in two or three years either with further symptoms of obstruction or with aggravating intermittent hematuria attributable to remaining adenomatous tissue that requires further resection. It becomes more and more apparent that to give the most satisfactory results transurethral resection must approach total prostatectomy. "Transurethral prostatectomy" must eventually replace "transurethral prostatic resection."

An important step in this direction has been the introduction of the Thompson "cold cutting" resectoscope [5] (fig. 1). Embodying the fundamentals of the Braasch-Bumpus resectoscope, it allows also cutting under visual control. Providing a self-contained unit, with the water inlet on the knife and a large outlet valve, it is possible to resect tissue rapidly and accurately. Instead of several steps being required for removal of each piece of tissue, several pieces can be cut rapidly and allowed to fall into the bladder, subsequently to be washed out through the outlet valve or to be aspirated with the evacuating syringe. With the Bugbee electrode always in place, individual bleeding points can be fulgurated instantly as they appear, reducing the loss of blood to a minimum.

Since Sept. 1, 1936, except in a few instances, the Thompson instrument has been used exclusively at the Mayo Clinic with excellent results, and we have found it extremely satisfactory for several reasons. From the surgeon's standpoint it is much easier to use. For instance, if tissue is in an extremely awkward position to be engaged when the scope has once been maneuvered into position, this portion of the prostate gland can be rapidly resected instead of its being necessary repeatedly to maneuver the scope into the difficult position required to engage each piece of tissue. With the increased length of the scope, tissue is more easily engaged, for greater leverage is available (the perineum acting as the fulcrum). This greater leverage reduces the manual strength required, so that the surgeon's arm and fingers do not tire so easily. Because the cutting is done under visual control and the length of the bite can be varied by opening the fenestra to any desired length, it is possible to remove tissue at the apex of the prostate gland with much less danger of injuring the external sphincter than would be entailed otherwise. Because of the rapidity with which the instrument can be operated, from 55 to 80 Gm. or more of tissue can be removed easily in a period of from forty-five to sixty minutes. As a result, almost complete prostatectomy is performed in a large percentage of cases.

TABLE 3.—*Comparison of Weight of Tissue Removed per Resection (Not per Patient)*

Weight of Tissue, Gm.	Transurethral Resections Performed in September—Successive Years: 1931 Resections	1931 Per Cent of Total	1932 Resections	1932 Per Cent of Total	1933 Resections	1933 Per Cent of Total	1934 Resections	1934 Per Cent of Total	1935 Resections	1935 Per Cent of Total	1936 Resections	1936 Per Cent of Total	1937 Resections	1937 Per Cent of Total
0-10	10	100.0	31	79.5	34	62.9	52	69.4	39	46.4	25	28.8	22	22.0
11-20	..	.....	8	20.5	14	25.9	16	21.3	28	33.4	25	28.8	26	26.0
21-30	..	.....	..	....	5	9.3	4	5.3	14	16.7	14	16.1	19	19.0
31-40	..	.....	..	....	1	1.9	2	2.7	2	2.3	8	9.2	12	12.0
41-50	..	.....	..	....	..	....	1	1.3	0	0.0	9	10.3	11	11.0
51-60	..	.....	..	....	..	....	..	....	1	1.2	3	3.4	5	5.0
61-70	..	.....	..	....	..	....	..	....	..	....	3	3.4	3	3.0
71-80	..	.....	..	....	..	....	..	....	..	....	..	....	2	2.0
Totals	10	100.0	39	100.0	54	100.0	75	100.0	84	100.0	87	100.0	100	100.0

Also important among the factors promoting more complete removal of tissue is the more liberal use of digital counterpressure in the rectum exerted by an assistant. Especially in the case of a pocketed urethra, this maneuver helps greatly in engaging tissue. If too strenuous attempts are made to engage tissue in such a urethra without counterpressure, the trigon and external sphincter may be considerably traumatized.

The results from the more nearly complete removal of prostatic tissue are gratifying. Delayed postoperative bleeding (which usually arises several months after

5. Thompson, G. J.: A New Direct Vision Resectoscope, Urol. & Cutan. Rev. **39**: 545-546 (Aug.) 1935.

operation in remaining remnants of adenomatous tissue) has become extremely uncommon. Convalescence is much smoother and the urinary infection is eradicated with remarkable rapidity; it is not uncommon to see patients from five to seven weeks after resection of a large prostate gland whose urine is crystal clear. Postoperative frequency and nocturia have been much reduced. It recently has become apparent that the

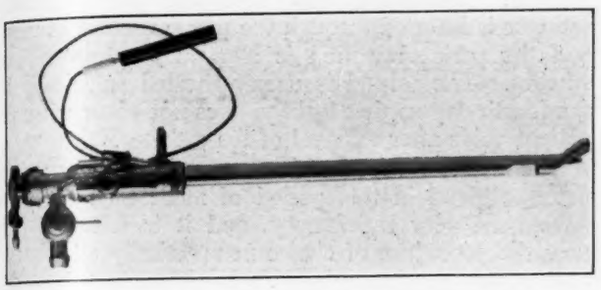

Fig. 1.—Thompson resectoscope.

judicious administration of sulfanilamide for a short period, about six weeks after resection, is exceedingly helpful in clearing the urine. When the cold cutting resectoscope is used, if resection has been completely done, the prostatic urethra is usually clean, well healed and free from bits of sloughing tissue in from four to six weeks following operation. After this period has elapsed, if the urine remains hazy, administration of sulfanilamide, 10 grains (0.65 Gm.) four times a day for from six to nine days, in the great majority of cases will cause the urine to become clear almost immediately. Sulfanilamide given preoperatively or immediately after operation, however, seems to be of little or no value. This statement has been carefully verified here by Gaudin, Zide and Thompson [6] in a large series of cases with controls.

For the purpose of illustrating the gradual tendency to remove larger amounts of prostatic tissue in transurethral resection, I have compared the work done in September 1937 with that done in each preceding September to and including 1931. There are several reasons for choosing September: It is the most recent month tabulated at the writing of this paper; it marks the completion of one year's almost exclusive use of the Thompson resectoscope, which has allowed time to acquire proficiency in its use. Also, our statistics at the clinic show that in the fall of the year prostate glands seem to be somewhat larger than at other seasons. This is probably explained by the fact that patients who have only large intra-urethral lateral lobes tend to suffer with acute episodes of obstruction at the onset of cold weather. A comparison of the work done in individual months will, I believe, better portray the status of transurethral resection at each definite stage of its development. As will subsequently be brought out in this paper, there is no reason to feel that prostate glands encountered vary in size from year to year.

A comparison of the work done in each September, from 1931 to 1937 inclusive, is interesting. One must remember, in studying the data presented subsequently, that the weight of tissue given is per resection and for that reason does not always indicate the total amount removed from a patient. For instance, the 100 resections done in September 1937 were performed on ninety-seven patients, signifying that three resections were secondary operations. Table 3 shows the marked increase in the amount of tissue removed per resection from year to year. The gradual increase was, of course, due to the improvement in technic as a result of increased experience. However, it will be noticed that there was a striking increase in the weight of tissue removed in September 1936 and September 1937. For instance, in September 1936 more than 30 Gm. of tissue was removed in 26 per cent of the resections, while in September 1937 more than 30 Gm. was removed in 33 per cent of the resections and more than 60 Gm. was removed in 5 per cent. The average weight of tissue removed per resection in September 1937 was 25.3 Gm.

In table 4 is given the approximate time that was required for resection in various years. It will be seen that in each succeeding year there was a gradual reduction in the operating time per gram of tissue removed. This no doubt was due to the gradual refinement of technic resulting from greater experience. The outstanding reduction in operating time, however, is seen to have been in the September 1937 group of cases. In table 5 this is demonstrated more clearly, as it is seen that in this month 85 per cent of the resections were completed in forty-five minutes or less, in spite of the fact that more than 40 Gm. of tissue was removed in 21 per cent of the cases. This sudden reduction in operating time is largely due to the rapidity with which the Thompson resectoscope can be operated.

The question is often raised as to what proportion of the prostate gland is removed at resection. For the first nine months of 1937 the average weight of tissue removed per patient was 23.6 Gm. From 1912 to 1931 inclusive, prostatectomy (either suprapubic or perineal) was performed at the Mayo Clinic in 3,629 cases. Of these cases we have the record of the weight of the prostatic tissue removed in 3,205, and in this group the average weight of tissue removed was 44.1 Gm. The highest average for any one year of this period was 51.3 Gm.; the lowest, 41.2 Gm. (fig. 2). This comparison, however, is not entirely fair to transurethral resection, for the average weight of tissue in

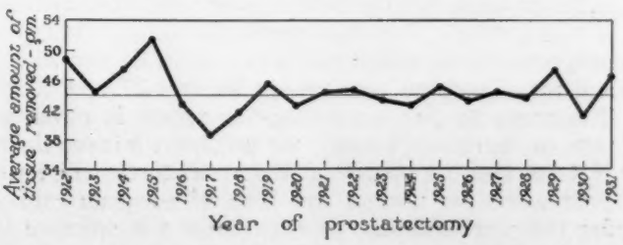

Fig. 2.—Average weight of tissue removed at prostatectomy from 1912 to 1931.

the group of cases in which transurethral resection was performed is considerably lowered by the many cases of median bar and contracture of the vesical neck in which, formerly, the risk of prostatectomy would not have been accepted. We have included every such case in tabulating the results of transurethral resection. If these cases were eliminated the average weight of tissue removed at resection would be materially increased. From these data it must be concluded that considerably more of the gland is being removed at transurethral resection than is generally supposed. As regards the incidence of "large prostates," it is of interest to note

6. Gaudin, H. J.; Zide, H. A., and Thompson, G. J.: Data Concerning Administration of Sulfanilamide Following Transurethral Prostatectomy, unpublished data.

that, of 3,205 prostate glands removed suprapubically or perineally at the Mayo Clinic between 1912 and 1931, only 7.3 per cent weighed more than 100 Gm.

The majority of distressing postoperative complications and accidents discussed in the urologic literature in relation to transurethral resection are rapidly disappearing as the general technic throughout the country improves with increased experience. There is one

TABLE 4.—*Comparison of Length of Operative Period*

Length of Operative Period, Minutes	Per Cent of Total Transurethral Resections Performed in September—Successive Years						
	1931	1932	1933	1934	1935	1936	1937
30 or less	20	17.9	33.3	38.7	38.1	39.1	53
31-45	60	30.8	33.3	33.3	22.6	24.1	32
46-60	20	35.9	13.0	12.0	14.3	23.0	11
61-75	..	15.4	7.4	10.7	17.8	6.9	4
Over 75	..	....	13.0	5.3	7.2	6.9	..
Total	100	100	100	100	100	100	100

complication, however, that, although it is of rather uncommon occurrence, still presents a problem in transurethral surgery. This is postoperative urethral stricture. It is rather difficult to estimate the incidence of postoperative stricture. Certainly there are cases in which a stricture of large caliber develops but never gives enough trouble to make the patient seek urologic advice. I would estimate that the possible incidence of postoperative urethral stricture at the Mayo Clinic has been from 1 to 1.5 per cent. Most of these strictures are slight and respond to one or two dilations. The majority are found in the anterior urethra, in the region of the penoscrotal angle, and occasionally they may be extremely difficult to dilate. In these cases internal urethrotomy is performed with the Riba [7] high frequency urethrotome and results are excellent. This procedure carries little if any risk, and in many cases the results seem to be permanent.

It is generally agreed that the cause of these strictures is the passing through the urethra of too large an instrument. If the resectoscope is tight in the urethra the chances of formation of stricture are increased. If too large an instrument is forced through the urethra and the mucosa is torn, the chance of a stricture forming is still greater. For that reason the Braasch-Bumpus instrument is manufactured in two sizes, 24 and 28 F., and the Thompson resectoscope in sizes 27 and 30 F. The one rule that we attempt to follow is never to pass an instrument through the urethra if it is too tight. Nevertheless, in occasional cases strictures will form even when the urethra has been of adequate caliber for the resectoscope. In such cases the stricture is nearly always at the penoscrotal angle and no doubt arises from the trauma induced by motion of the resectoscope back and forth in engaging tissue. It is believed that the incidence of this type of stricture may be somewhat reduced with the new resectoscope, since fewer motions are involved in its use.

Probably the best solution yet devised to prevent postoperative stricture is that of "perineal prostatic resection," as recently described by Thompson [8] and Cabot.[9] If this procedure is used in all cases in which the urethra is too narrow to allow the resectoscope to pass freely, the incidence of postoperative stricture should be reduced to an almost negligible figure. This procedure makes use of the fact that the bulbous urethra is nearly always of large caliber. Over the tip of a sound that has been passed into the bulbous urethra external urethrotomy is performed and the resectoscope is introduced into the bladder through this incision. Following the resection the indwelling catheter is inserted through the penile urethra as usual, and the perineal wound is allowed to close without stitches. The wound is usually healed sufficiently by the fourth day so that leakage does not occur when the patient voids after removal of the catheter.

The results obtained with transurethral surgery of the prostate gland in this period of more than six years have been very satisfactory, and it is felt that it is now the procedure of choice in practically all cases of obstructing prostate glands. With increased experience and improved instruments one might safely predict that transurethral resection will become known in the literature of the future as transurethral prostatectomy.

COMMENT AND SUMMARY

Transurethral resection has dispelled much of the fear of prostatic surgical procedures among laymen. Because of this, a much larger number of patients are seeking surgical relief of prostatic obstruction than in the days when prostatectomy was the sole method employed. A part of this increase is also due to the large proportion of older men who formerly were regarded as offering too poor surgical risks.

The incidence of preliminary suprapubic drainage before resection is rapidly declining and drainage by catheter is employed only in cases in which nitrogen is being retained. The most important advance in resection has been the removal of larger amounts of tissue and reduction in operating time, owing to increased technical experience and improved instruments. Because of this removal of larger amounts of tissue, convalescence is smoother and results are more satisfactory than before. The judicious use of sulfanilamide several weeks after resection is of distinct value. Postoperative urethral stricture can be reduced to an almost negligible minimum if "perineal prostatic resection" is employed in cases in which the urethra is too tight to admit the resectoscope readily. The statistics comparing the progress of six years suggest that transurethral resection is eventually to become transurethral prostatectomy.

TABLE 5.—*Per Cent of Resections Completed Within a Forty-Five Minute Operative Period Compared with Weight of Tissue Removed*

September	Per Cent of Month's Resections Completed Within a 45 Minute Operative Period	Per Cent of Month's Resections in Which Amount of Tissue Removed Was More Than			
		30 Gm.	40 Gm.	50 Gm.	60 Gm.
1931	80	0	0	0	0
1932	48.7	0	0	0	0
1933	66.6	1.9	0	0	0
1934	84	4.0	1.3	0	0
1935	60.7	3.5	1.2	1.2	0
1936	63.2	26.3	17.1	6.8	3.4
1937	85	33.0	21.0	10.0	5.0

7. Riba, L. W.: Electro-Urethrotomy in the Treatment of Urethral Strictures, J. A. M. A. **106**: 1971-1975 (June 6) 1936.

8. Thompson, G. J.: Perineal Prostatic Resection, Proc. Staff Meet., Mayo Clin. **12**: 360-362 (June 9) 1937.

9. Cabot, Hugh: in discussion on Thompson, Proc. Staff Meet., Mayo Clin. **12**: 362-363 (June 9) 1937.

THE TREATMENT OF ALCOHOLIC PSYCHOSES WITH BENZEDRINE SULFATE

PRELIMINARY REPORT

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Alcohol is recognized to have a depressing effect on the central nervous system.[1] It therefore seemed rational to us [2] to attempt treatment of psychoses due to intoxication from alcohol with benzedrine sulfate (beta-phenylisopropylamine sulfate), which has been established to have a stimulating effect on the central nervous system.[3] Because of the nature of the results it appeared desirable to present this preliminary report.

A series of patients admitted to the Syracuse Psychopathic Hospital in psychotic states brought on by alcohol were subjected to careful physical and mental observation and then given from 10 to 30 mg. of benzedrine sulfate by mouth daily. In a few instances from 10 to 30 mg. of the drug was administered intravenously.[4] In all cases the diagnosis was made according to the classification adopted by the American Psychiatric Association.

In an estimation of the influence of the drug in these cases consideration was given to (*a*) the opinion of staff members who were unaware of the medication employed in a given case, (*b*) the response as compared with control cases and (*c*) the rapidity of dissipation of the psychotic state, including confusion, with acceleration of improvement in mood, speech and coordinate motor activity, accessibility and general efficiency.

In general it may be said that mild states of depression following drinking debauches respond in an exceedingly striking manner to benzedrine sulfate. Doses of from 10 to 20 mg. of the drug given by mouth in the morning will often produce marked improvement within twenty-four hours. Several persons with alcoholic stupor were aroused within thirty minutes after the injection of from 10 to 30 mg. of benzedrine sulfate intravenously. As is to be expected, those with pathologic intoxication reacted very favorably to the drug. In cases of delirium tremens and of early acute hallucinosis the response was also satisfactory. In cases of chronic hallucinosis and of Korsakoff's psychosis the results were not as gratifying. Benzedrine sulfate appeared to be of most value in the treatment of alcoholic psychosis of recent onset in which organic defects of the sensorium, deterioration or personality alterations had not developed.

Some of the results are indicated in the accompanying table. A definitely and at times markedly accelerated rate of improvement was obtained in 93 per cent of twenty-eight patients, including fifteen patients with pathologic intoxication, five with delirium tremens, four with acute hallucinosis and four with Korsakoff's syndrome. One patient with pathologic intoxication from methyl alcohol responded very satisfactorily. In cases of delirium tremens the results with benzedrine sulfate were at least as effective as those obtained with drainage of the spinal fluid. Except for two patients with Korsakoff's psychosis complicated by arteriosclerosis, none thus far treated with benzedrine sulfate have required commitment to a hospital for chronic mental patients. We have observed [2] that the drug at times may be of value in differentiating the states of depression due to alcohol alone, which are usually rapidly dissipated by the drug, from the states of depression superimposed on and masking depressions of psychogenic origin, which do not respond as rapidly to the drug.

The Treatment of Alcoholic Psychoses with Benzedrine Sulfate

Case	Days Necessary for Recovery	Accelerated Rate of Improvement	Increased General Efficiency	Improvement in Speech Activity	Improvement or Elevation of Mood
Pathologic Intoxication					
1. J. W.	1	+	+	+	+
2. B. L.	2	+	+	+	+
3. M. K.	2	+	+	+	+
4. O. P.	2	+	+	+	+
5. A. S.	2	+	+	+	+
6. J. P.*	3	+	+	+	+
7. D. C.	3	+	+	+	+
8. B. C.	5	+	+	+	+
9. E. K.	5	+	+	+	+
10. K. S.	5	+	+	+	+
11. C. M.	5	+	+	+	+
12. F. B.	7	+	+	+	+
13. J. C.	7	+	+	+	+
14. S. S.	10	+	+	+	+
15. A. S.	10	+	+	+	+
Delirium Tremens					
1. S. N.	1	+	+	+	+
2. T. M.	2	+	+	+	+
3. A. S.	3	+	+	+	+
4. D. C.	5	+	+	+	+
5. A. M.	7	+	+	+	+
Acute Hallucinosis					
1. B. C.	10	+	+	+	+
2. S. K.	14	+	+	+	+
3. H. C.	14	+	+	+	+
4. H. N.	14	+	+	+	+
Korsakoff's Psychosis					
1. S. D.	7	+	+	+	+
2. V. W.	14	+	+	+	+
3. J. S.†	—	—	Slight	Slight	Slight
4. L. H.†	—	—	—	—	—
Total (28 cases)		26 (93%)	27 (96%)	27 (96%)	27 (96%)

* Methyl alcohol.
† Committed after thirty days; both patients over 60 years of age.

In states of intoxication with alcohol in which no psychosis was demonstrable, benzedrine sulfate usually produced an even more satisfactory response than in states of intoxication in which a psychosis existed. The headache, fatigue, languor and mental retardation which are characteristic of a "hang-over" usually disappeared within an hour or so after a morning dose of from 5 to 10 mg. A similar response in several patients was mentioned by Wilbur, MacLean and Allen.[5] We suggest that benzedrine sulfate may produce these beneficial responses in alcoholic states through its action of stimulating the central and the sympathetic

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1. Bastedo, W. A.: Materia Medica, Pharmacology, Therapeutics and Prescription Writing for Students and Practitioners, Philadelphia, W. B. Saunders Company, 1937, p. 394.

2. Davidoff, Eugene: A Clinical Study of the Effect of Benzedrine on Self-Absorbed Patients, Psychiat. Quart. **10**: 652-659 (Oct.) 1936. Davidoff, Eugene, and Reifenstein, E. C., Jr.: The Stimulating Action of Benzedrine Sulfate: A Comparative Study of the Responses of Normal Persons and of Depressed Patients, J. A. M. A. **108**: 1770-1776 (May 22) 1937.

3. Prinzmetal, Myron, and Bloomberg, Wilfred: The Use of Benzedrine for the Treatment of Narcolepsy, J. A. M. A. **105**: 2051-2054 (Dec. 21) 1935. Nathanson, M. H.: The Central Action of Beta-Aminopropylbenzene (Benzedrine), ibid. **108**: 528-531 (Feb. 13) 1937. Davidoff.[2] Davidoff and Reifenstein.[2]

4. Mr. Theodore B. Wallace, of Smith, Kline and French Laboratories, Philadelphia, supplied the benzedrine sulfate tablets and ampules for intravenous use.

5. Wilbur, D. L.; MacLean, A. R., and Allen, E. V.: Clinical Observations on the Effect of Benzedrine Sulfate: A Study of Patients with States of Chronic Exhaustion, Depression and Psychoneurosis, J. A. M. A. **109**: 549-554 (Aug. 21) 1937.

nervous system and also directly by neutralizing or antagonizing the alcohol itself.

A number of persons have compared the sensations produced by benzedrine sulfate with those of a mild state of alcoholic intoxication; one characterized his experience as "a cheap jag." Those who had a liking for spirituous liquors particularly relished the drug. Because of these pleasurable sensations many persons request the drug or procure it for themselves at pharmacies. We are convinced that, in certain persons at least, benzedrine sulfate is habit forming. We have observed such tendencies in persons addicted to alcohol, morphine and other drugs; in neurotic persons who crave medication, and in people who work under excessive strain, such as actors, students, nurses and physicians.

That alcoholism is often a manifestation of an underlying psychoneurotic personality is well recognized. Benzedrine sulfate may prove to be of value in overcoming alcoholic habituation; however, it is open to question whether this drug should be administered to persons who have demonstrated a tendency to addiction by their chronic alcoholic habits.

Because of this danger of addiction, because of the relatively frequent and unpredictable occurrence of untoward effects (as we have previously mentioned [2]) and because of the occasional appearance of serious toxic reactions,[6] we believe that the use of benzedrine sulfate in states of alcoholism with or without psychosis can rarely be justified outside of institutions. That successful treatment of chronic alcoholism itself requires hospitalization in an institution set aside for this purpose is becoming increasingly apparent, and this is evidenced by the proposed erection of such an institution by the state of New York. Only by thus restricting the use of benzedrine sulfate to inpatients can physicians be assured of adequate supervision, which will minimize the dangers of unfavorable events and prevent the abuse of this useful drug.

SUMMARY

1. In twenty-eight patients with psychosis due to intoxication from alcohol, benzedrine sulfate produced a definite and at times a marked acceleration of improvement in 93 per cent. The drug appeared to be of most value in the cases of recent onset but exercised a favorable influence on alcoholic depressions in general.

2. In states of intoxication brought on by alcohol in which no psychosis was demonstrable an even more satisfactory response to benzedrine sulfate was obtained. The depressive after-effects of alcoholism were usually rapidly dissipated.

3. The use of benzedrine sulfate in states of alcoholism with or without psychosis should be limited to institutionalized patients, in whom the dangers of habit formation with benzedrine sulfate itself and of harm from unpredictable untoward effects or serious toxic reactions can be adequately safeguarded. Under these conditions the drug may prove to be of value in overcoming chronic alcoholic habituation.

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6. Anderson, E. W., and Scott, W. C.: Cardiovascular Effects of Benzedrine, Lancet **2**: 1461-1462 (Dec. 19) 1936. Davies, I. J.: Benzedrine: A Review of Its Toxic Effects, with the Report of a Severe Case of Anemia Following Its Use, Brit. M. J. **2**: 615-617 (Sept. 25) 1937. Donley, D. E.: Observations on the Use of Benzedrine in the Psychoses, Ohio State M. J. **33**: 1229-1232 (Nov.) 1937 (case 7). Meerloo, A. M.: Benzedrine sulfaat als Hersenstimulans, Nederl. tijdschr. v. geneesk. **81**: 5797-5800 (Dec. 4) 1937 (case 1). Apfelberg, Benjamin: A Case of Benzedrine Sulfate Poisoning, J. A. M. A. **110**: 575-576 (Feb. 19) 1938.

FATALITIES FOLLOWING INJECTION TREATMENT OF HERNIA

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In estimating the value of the injection treatment of hernia, a significant consideration is its adaptability to use by those who treat relatively few cases, and especially those who have not been accustomed to applying the surgical treatment for hernia. Because many such individuals are now treating hernia by the injection method, and because its extreme safety has been so strongly stressed by many writers, it seems justifiable to submit evidence to the contrary, in an effort to emphasize certain inherent dangers in the method. The ultimate status of the injection treatment will depend largely on the percentage of cures indicated by unbiased critical follow-up studies of not less than three year periods. At present such conclusions cannot be drawn.[1] In the meantime considerable evidence should accrue regarding the more acute complications of the treatment. This report is a consideration of two deaths due to the injection of inguinal hernia, in which the complication arose from too deep insertion of the needle, producing an intraperitoneal injection. Two previous cases are reported in the literature.[2] The factors surrounding cases of this type are such as to lessen the chances of their being reported. This suggests a higher incidence of the complication than the literature would indicate.

The occurrence of intraperitoneal injection must be assumed to vary considerably, being lowest in the hands of those skilled in the method and increasing in frequency in the hands of those with more limited experience. Some writers emphasize the importance of deep injections in obtaining good results.[2] Those following this technic rather than trying to inject just below the external oblique aponeurosis will certainly have a higher incidence of intraperitoneal injections. In their own series Harris and White [3] report this complication eight times in 3,000 injections. This may be taken to represent an incidence of approximately one intraperitoneal injection in every twenty cases treated for unilateral hernia and may be accepted as a minimum incidence of the complication.

Most writers on the technic of injection treatment consider the problem of intraperitoneal injection at some length, as it obviously is the most significant danger in the method. It is emphasized that all injections be given slowly, so that a minimum amount of sclerosing fluid will have been given in case that characteristic diffuse hypogastric pain occurs. There are admittedly no criteria which indicate before the injection is started that the needle has entered the peritoneal cavity. It is emphasized in the literature that this immediate reaction should not be considered an indication for laparotomy because the reaction passes quickly and there are no sequelae. In contrast to these conceptions, it is my opinion that the fibrinous chemical peritonitis resulting from the presence of the fluid can produce adhesions as a part of the healing process and

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1. Burdeck, C. G., and Coley, B. L.: Injection Method of Treating Hernia, Ann. Surg. **106**: 322 (Sept.) 1937.

2. Fowler, S. W.: Injection Treatment of Hernia, Indust. Med. **5**: 405 (Aug.-Sept.) 1936.

3. Harris, F. I., and White, A. S.: Injection Treatment of Hernia, California & West. Med. **45**: 382 (Nov.) 1936.

condition the development of intestinal obstruction. Such cases are being recognized. In addition to this danger it is undeniable that the needle can be inserted into the bowel wall and even into its lumen. Injection of the bowel wall, particularly if complicated by infection, may produce sloughing, perforation and peritonitis. The following cases represent complications of this type. Both were admitted to the Los Angeles General Hospital in a condition requiring immediate attention, their previous treatment having been given elsewhere. The injection had been made in one instance by an irregular practitioner, in the other by a regular physician specializing in the injection treatment.

REPORT OF CASES

CASE 1.—J. S., a man aged 57, a laborer, had acquired bilateral inguinal hernia approximately three years before. Injection treatment had recently been started, four injections having been made on the left and two on the right side. Three days preceding admission a third injection of quinine and urea hydrochloride was given on the right side, followed by severe pain in the right lower quadrant. The severe pain lasted two hours and gradually decreased until it was but slight after twelve hours. The following morning (eighteen hours later) vomiting occurred, persisted with increasing frequency to the time of admission and was associated with obstipation.

Examination revealed that the patient was toxic and dehydrated, with a temperature of 98.6 F., pulse rate 124 and respiratory rate 24. The arterial blood pressure measured 116 mm. of mercury systolic and 88 diastolic. The abdomen was distended, diffusely rigid and tender, and only an occasional peristaltic sound was heard. No significant abnormalities were present in the urine. The white blood cells numbered 7,600, with 93 per cent of polymorphonuclear leukocytes.

Laparotomy was done soon after admission. A 2 cm. perforation of the ileum was found on its antimesenteric border, about 75 cm. from the ileocecal valve. This was surrounded by a large amount of plastic exudate, partially walling off the bowel content which had been passed out through the opening. A large part of this bowel content was a green vegetable. Two rows of Lembert sutures were placed to close the perforation transversely and the peritoneal cavity was drained. Death occurred eighteen hours later. Autopsy revealed an acute generalized peritonitis.

CASE 2.—M.F.D., a man aged 47, a laborer, entered the hospital complaining of abdominal pain. Ten days before, following injection given for bilateral inguinal hernia, he had abdominal pain and diarrhea. He was treated for enteritis and was able to resume work. Five days before admission to the hospital he had severe left lower quadrant pain, associated with collapse. Many details of the history could not be learned.

The patient was very ill. The temperature was 99.4 F., pulse rate 108, respiratory rate 28. The arterial blood pressure measured 150 mm. of mercury systolic and 90 diastolic. There was marked abdominal distention, with tenderness graded three plus in both lower quadrants, and proportionate rigidity. Peristalsis was present in the upper part of the abdomen. By rectum a boggy tender mass was palpated at the upper limit of the finger's reach. A "scout" film of the abdomen showed multiple coils of intestine, both small and large, distended with gas. No pathologic changes were found in the urine. Blood examination was not made.

Laparotomy was carried out soon after the patient's admission. The lower quadrants presented a purulent exudate with a foul odor, and on the left there was considerable clotted blood. The sigmoid seemed torn from its lateral attachment and presented a 2 cm. perforation. For about 7 cm. in each direction the sigmoid looked gangrenous. The discolored area was resected, the distal segment closed and dropped, and the proximal end brought out as a single barreled colostomy. The patient died soon after the laparotomy.

Culture of the peritoneal exudate grew Escherica coli and Streptococcus viridans. Microscopic study of the margin of the perforation showed young granulation tissue, hemorrhage and an acute inflammatory exudate. Autopsy disclosed approximately 400 cc. of bloody fluid in the upper part of the abdomen and a fibrinopurulent exudate throughout the lower part of the abdomen.

SUMMARY

In the two cases reported, death was due to an injection made in the course of treatment for inguinal hernia. In the first case the acute process progressed from the time of injection, and in the second case after an initial syndrome suggesting severe irritation of the bowel wall a quiescent period occurred, with a sudden acute progressive episode five days later, probably indicating the time of perforation. These cases constitute an indictment against the teaching that intraperitoneal injection is a harmless accident and establish that laparotomy may be necessary at any time, as an emergency procedure, on the appearance of symptoms and signs indicating a significant variation from the usual clinical course following intraperitoneal injection.

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PRECOCIOUS SEXUAL DEVELOPMENT FROM AN ANTERIOR PITUITARY-LIKE PRINCIPLE

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Rapidly accumulating evidence clearly shows that the anterior pituitary-like principle from the urine of pregnant women exerts a profound influence on the growth and function of the male genitalia. It may produce an increase in the size of the penis, scrotum and prostate in both man [1] and animals [2] before the age of puberty. The consensus is that in the testis it influences primarily the interstitial cells,[3] although there is some evidence

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1. Schapiro, B.: Klinische Studien über die Wirkung des Hypophysenvorderlappens auf den männlichen Genitalapparat, Ztschr. f. klin. Med. **114:** 610, 1930. Gorodner, J., and Rolon, R.: Tratamiento hormonal de la ectopia testicular, Semana méd. **1:** 219 (Jan. 21) 1937. Sexton, D. L.: Treatment of Sexual Underdevelopment in the Human Male with the Anterior Pituitary-like Hormone of Urine of Pregnancy, Endocrinology **18:** 47 (Jan.-Feb.) 1934. Aberle, S. B. D., and Jenkins, R. H.: Undescended Testes in Man and Rhesus Monkeys, Treated with the Anterior Pituitary-like Principle from the Urine of Pregnancy, J. A. M. A. **103:** 314 (Aug. 4) 1934. Goldman, A.; Stern, A., and Lapin, J.: Treatment of Undescended Testes by Anterior Pituitary-like Principle from Urine of Pregnancy, New York State J. Med. **36:** 15 (Jan. 1) 1936. Dorff, G. B.: Maldevelopment and Maldescent of the Testes; Further Observations on Treatment with the Anterior Pituitary-like Gonadotropic Hormone, Am. J. Dis. Child. **50:** 1429 (Dec.) 1935. Mimpriss, T. W.: The Treatment of Imperfect Descent of the Testes with Gonadotropic Hormones, Lancet **1:** 497 (Feb. 27) 1937.

2. (*a*) Boeters, H.: Prolanversuche an jungen männlichen Ratten, Deutsche med. Wchnschr. **56:** 1382 (Aug. 15) 1930. (*b*) Brouha, L., and Simonnet, H.: Nouvelles recherches concernant l'action de l'urine de femme enceinte sur le tractus génital male, Compt. rend. Soc. de biol. **103:** 558 (Feb. 28) 1930. (*c*) Engle, E. T.: The Response of the Male Genital System to Treatment with Urine from Pregnant Women and from Men, Anat. Rec. **43:** 187 (July 25) 1929. (*d*) Engle, E. T.: Experimentally Induced Descent of the Testis in the Macacus Monkey by Hormones from the Anterior Pituitary and Pregnancy Urine; the Role of the Gonadokinetic Hormones in Pregnancy Blood in Normal Descent of the Testes in Man, Endocrinology **16:** 513 (Sept.-Oct.) 1932. (*e*) Geschickter, C. F.: Prostatic Hypertrophy, Am. J. Roentgenol. **38:** 389 (Sept.) 1937. (*f*) Deming, C. L.: The Gonadotropic Factor as an Aid to Surgery in the Treatment of the Undescended Testicle, J. Urol. **36:** 274 (Sept.) 1936. (*g*) de Jongh, S. E.: Die Wirkung der Sexualhormone der Hypophyse auf männliche Tiere, Arch. f. d. ges. Physiol. **226:** 547, 1931. (*h*) Butcher, E. O.: The Effect of Injections of Human Pregnancy Urine and an Extract of That Urine on the Reproductive Organs of the Immature Male Rat, Anat. Rec. (supp.) **54:** 49 (Nov. 25) 1932.

3. Smith, P. E., and Engle, E. T.: Gonad Stimulating Hormones from the Pituitary and from Human Urine, J. Pediat. **5:** 163 (Aug.) 1934. Collip, J. B.; Selye, H., and Thomson, D. L.: Gonad Stimulating Hormones in Hypophysectomized Animals, Nature, London **131:** 56 (Jan. 14) 1933. Engle,[3c] Geschickter,[3e] de Jongh,[2g]

that the seminiferous tubules may also be affected.[4] Some increase in the size of the testes has been produced in rats[5] and monkeys.[6] In the course of treating patients for undescended testes we have been struck more by its influence on the growth of the genitalia than by its influence on the descent of the testis.[7] It will be shown that this stimulation of genital growth may be so marked that changes simulating premature puberty are produced.

DATA

In the course of treating thirty-three patients for undescended testis with the anterior pituitary-like principle,[8] genital growth was produced in eighteen, and in fourteen it was marked. In two of them, aged 7 and 9 years, a condition resembling premature puberty resulted. The penis became as large as that of an adult. There was an increase in the size of the scrotum and prostate, a growth of pubic hair, a marked increase in frequency of erections, a change in the pitch of the voice, and in one a growth of hair on the sides of the face. Similar changes were produced in a 4 year old boy out of a total of twelve patients with hypogenitalism, and less marked growth in eight others. The boy showing changes simulating premature puberty was of normal body contour but had an atrophic left testis. All boys showing genital growth became more masculine. It should be pointed out that in some of the patients with undescended testes and hypogenitalism who failed to show any growth the dose may have been inadequate, there being several examples in our series of failure of growth with a small dose and a well marked growth with a larger dose.

REPORT OF THREE CASES IN WHICH A SYNDROME SIMULATING PREMATURE PUBERTY DEVELOPED

CASE 1.—T. D., an Italian boy aged 6 years and 7 months came to the clinic July 16, 1936, because of failure of descent of the right testis. He was of normal body contour but slightly short for his age. In the erect posture the right testis was at the level of the external ring but could not be displaced downward. There was some question of a right inguinal hernia, which may have accounted for a painful swelling which had occurred occasionally since he was 2 months old. The penis measured 3.8 by 1.9 cm. and the left testis 2.2 by 1.2 cm. The prostate was not palpable. Treatment with follutein was begun August 7 and the dose rapidly increased to 200 rat units six times a week. September 11, after he had had a total of 5,370 units, his mother stated that the right testis had been in the scrotum since two weeks after the treatment was started. However, on physical examination the right testis was felt just above the upper end of the scrotum with the patient in the upright position and could be pulled into the upper end of the scrotum. The penis and scrotum were larger, erections were more frequent and he had started to masturbate. September 24, after a total of 7,570 units, the right testis, associated with what appeared to be a hernia, was in the upper end of the scrotum and could be pulled to a lower level in the scrotum. The penis measured 5.1 by 2.7 cm. and the left testis 2.8 by 1.9 cm. There were several pubic hairs as much as 0.9 cm. long. The prostate was about 2 cm. in diameter. Erections continued to be frequent. October 30, after he had had a total of 13,170 units of follutein, both testes were in the scrotum, but the right testis was attached to what was thought to be a peritoneal pouch. The penis measured 5.4 by 2.5 cm. and the left testis 2.5 by 1.4 cm. The prostate was about 3 cm. in diameter and was full. The pubic hairs were as much as 1.6 cm. long. The scrotum had enlarged. December 11, after he had had a total of 19,770 units, the right testis was in the upper end of the scrotum and estimated to be about 0.7 cm. in diameter. Extending for from 2.5 to 3.8 cm. below it was the fluctuant mass previously described. The penis measured 7 by 3 cm. and the left testis 2.5 by 1.4 cm. The pubic hair had grown so that it was as much as 4.4 cm. long. The prostate was enlarged, well defined and about 2.5 cm. in diameter.

Jan. 15, 1937, after he had had a total of 24,970 units of follutein, the right testis was still in the upper end of the scrotum with a sac extending below it. The penis measured 6.7 by 3.2 cm. and the left testis 2.9 by 1.6 cm. The prostate was 2.5 cm. in diameter. There was a marked increase in pubic hair, which was as much as 5.1 cm. long. February 26, after a total of 26,770 units, the right testis was in the upper end of the scrotum and surrounded by a sac which extended 2.5 cm. below it. This sac was not in the scrotum before treatment was started and with treatment had grown down to the lower end of the scrotum, which had also enlarged. The penis measured 6.4 by 3.8 cm. and the left testis 2.9 by 1.9 cm. The right testis was in about the same position. The prostate was about the same size as on the previous examination, and the pubic hairs were abundant and as much as 7 cm. long. It was stated that his voice began to show lowering of pitch about one month after the treatment was started. The hair on the sides of his face was long for his age, but we could not be sure whether it had grown during treatment or not. By April 9 there was not much further change. The penis measured 6.7 by 3 cm. and the left testis 2.9 by 1.6 cm.; the right testis was a small, hard, cherry-sized nodule in the upper end of the scrotum. The prostate was well developed and about 3 cm. in diameter.

May 28, 1937, after he had had a total of 47,370 units, a small hard right testis 0.7 cm. in diameter was still felt in the upper end of the scrotum, lying attached to the pouch previously described. The penis measured 7.3 by 3.2 cm. and the left testis 2.5 by 1.4 cm. The left testis was at a much lower level and the scrotum was much larger than before treatment was started. July 16, after a total of 55,370 units, the firm hard right testis, about 0.7 cm. in diameter, was still felt in the upper end of the scrotum associated with the pouch already described. The penis measured 7 by 3.2 cm. and the left testis 2.5 by 1.4 cm. The prostate had not changed in size. Erections continued to be very frequent. The pubic hairs were about the same.

At 11 a. m. August 19, after the patient had received a total of 60,570 units, a firm painful swelling about 6 cm. in diameter developed in the right side of the scrotum. This swelling could not be reduced by manipulation. Operative procedures were started at 3 p. m., the usual right herniotomy incision being made. A purplish loop of bowel was found extending down to the extreme upper end of the scrotum and held down at both the external and internal ring. Extending about 6.4 cm. below this loop of bowel was a fluctuant swelling containing about 100 cc. of clear yellow fluid. This represented a marked increase in the size of the pouch previously described. The increase in the fluid was apparently caused by transudation associated with the strangulated hernia. At the proximal posterior end of this fluctuant swelling, just distal to the loop of bowel, was an atrophic white testis measuring about 1.5 by

4. Boeters, H.: Das Hypophysenvorderlappenhormon (Prolan) und die männliche Keimdruse: Experimentelle Untersuchungen an Ratten, Virchows Arch. f. path. Anat. **280**: 215, 1931. Smith and Engle.[3] Smith, P. E., and Leonard, S. L.: Responses of the Reproductive System of Hypophysectomized and Normal Rats to Injections of Pregnancy-Urine Extracts: I. The Male, Anat. Rec. **58**: 145 (Jan. 25) 1934. Borst, M., and Gostimirović, D.: Geschlechtsphysiologische Studien; Weitere Ergebnisse über die Beziehungen zwischen dem Geschlechtshormon des Hypophysenvorderlappens und der männlichen Keimdruse: Das männlichen als das Testobjekt für das Geschlechts Hormon des Hypophysenvorderlappens, München. med. Wchnschr. **77**: 1536-1539 (Sept. 5) 1930. Brosius, W. L., and Schaefer, R. L.: Spermatogenesis Following Therapy with the Gonad Stimulating Extract from the Urine of Pregnancy, J. A. M. A. **101**: 1227 (Oct. 14) 1933.

5. Moore, C. R.: Responses of Immature Rat Testes to Gonadotropic Agents, Am. J. Anat. **59**: 63 (May) 1936. Butcher.[2b] Brouha and Simonnet.[2b]

6. Engle.[2d] Geschickter.[2e]

7. Thompson, W. O.; Bevan, A. D.; Heckel, N. J.; McCarthy, E. R., and Thompson, Phebe K.: The Treatment of Undescended Testes With Anterior Pituitary-like Substance, Endocrinology **21**: 220 (March) 1937. Thompson, W. O.; Heckel, N. J.; Bevan, A. D., and Thompson, Phebe K.: The Treatment of Hypogenitalism in the Male, Illinois M. J. **72**: 279 (Sept.) 1937. Thompson, W. O.; Heckel, N. J.; Bevan, A. D., and Thompson, Phebe K.: Premature Puberty from Treatment for Undescended Testes: Application to Hypogenitalism, Tr. A. Am. Physicians **52**: 137, 1937. Thompson, W. O.; Heckel, N. J.; Thompson, Phebe K., and Dickie, L. F. N.: Further Observations on the Treatment of Hypogenitalism and Undescended Testes, with Special Reference to the Production of Premature Puberty, Endocrinology **22**: 59 (Jan.) 1938.

8. We used two preparations of the anterior pituitary-like principle, follutein of E. R. Squibb and Sons, and A. P. L. of Ayerst, McKenna and Harrison. These were supplied by the respective companies.

0.7 cm. This was larger than the previous estimates. The strangulated bowel was returned to the abdominal cavity. A tunica vaginalis was formed from part of the peritoneal pouch and the testis placed in the scrotum.

Aug. 12, 1936, the patient's basal metabolism was minus 11 per cent. March 6, 1937, it was minus 16 per cent. March 27, 1937, it was minus 10 per cent. His weight increased from

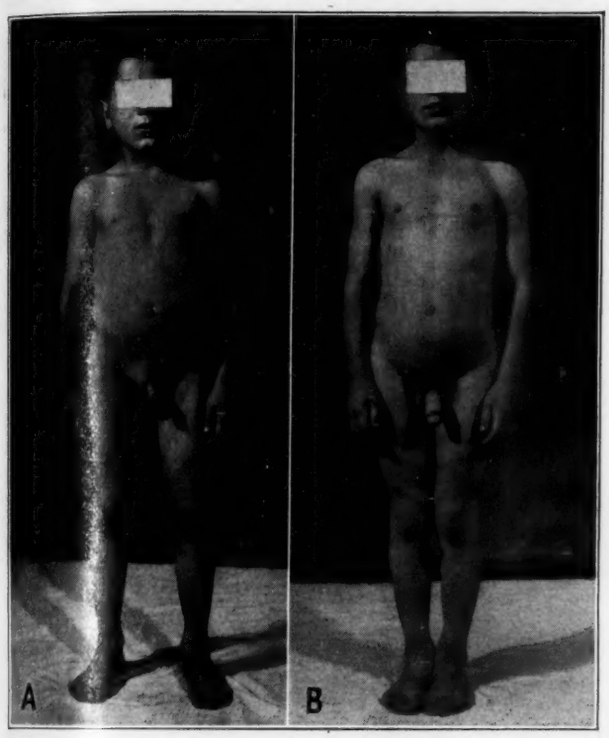

Fig. 1.—Precocious sexual development in case 1: *A*, July 18, 1936, before treatment, age 6 years 7 months; *B*, July 24, 1937, after eleven and one half months of treatment with anterior pituitary-like principle (total dose 56,570 rat units).

19.5 Kg. Aug. 12, 1936, to 26.5 Kg. by March 27, 1937. During the same period his height increased from 113.7 cm. to 123.2 cm. March 8, 1937, there appeared to be about normal development of the epiphysial lines of the knees and elbows and on July 30 there was no evidence of any premature closing.

Photographs of this patient during the course of treatment are shown in figures 1 and 2. It is of interest that at the age of 7 years he had a penis larger than that of his father.

CASE 2.—E. W., aged 9 years and 1 month, came to the clinic June 19, 1936, because the testes had not been brought to a sufficiently low level by operative procedures. A right orchidopexy had been done at the Cook County Hospital July 31, 1935, and a left orchidopexy at the same institution Oct. 15, 1935. The position of the right testis before operation was not described. The left testis was said to be in the canal just below the internal ring. On each side the undescended testis was associated with a small hernia. When we first saw the patient each testis was about the size of "a small cherry" and located at the junction of the scrotum and the opening above it. The scrotum was small. The penis measured 4.1 by 2.2 cm. The prostate was barely palpable. The pubic hair was just a fine fuzz. The body contour was normal. Treatment with follutein was started July 27, 1936, and the dose rapidly increased until he was receiving 200 rat units six times a week. Aug. 7, 1936, after he had had a total of 1,520 units, the penis had enlarged to 5.4 by 2.2 cm. and the prostate was about 2.5 cm. in diameter. Erections had become more frequent. There was no definite change in the position of the testes. September 24, after he had had a total of 7,720 units, each testis was the size of "a large cherry" and seemed to be at a slightly lower level. The penis measured 5.1 by 2.7 cm. and the prostate was about 2 cm. in diameter. October 30, after he had had a total of 12,720 units, the testes were at a definitely lower level than before treatment was started, although still in the upper part of the scrotum. The penis measured 6.1 by 2.7 cm., the right testis 2.5 by 1.6 cm. and the left testis 2.9 by 1.9 cm. The prostate was well defined and about 2 cm. in diameter.

December 11, after he had had a total of 17,320 units, the genitalia had grown still more and the testes were at a slightly lower level in the scrotum, which was enlarging. The penis measured 7 by 3 cm. and the prostate was about 2.5 cm. in diameter. The pubic hairs had grown slightly. By Jan. 15, 1937, after he had had a total of 19,520 units, the penis measured 7.3 by 3 cm., the right testis 3.2 by 2.5 cm. and the left testis 3.8 by 2.5 cm. The prostate was about 2.5 cm. in diameter and there were several pubic hairs as much as 1.2 cm. long. By February 26, after he had had a total of 23,320 units, the penis was about the same size as at the time of the previous examination and each testis measured 3.5 by 2.2 cm. The pubic hairs were as much as 1.9 cm. long. His voice had become lower in pitch, he was very aggressive and his muscles were hard. Erections continued to be frequent. April 9, 1937, after a total of 27,120 units, his scrotum had developed more and his testes were at a lower level. The penis measured 7.6 by 3 cm., the right testis 3.2 by 2.4 cm. and the left testis 3.5 by 1.9 cm. The pubic hair was about the same as on February 26. The prostate was about 2 cm. in diameter. May 28, after a total of 31,520 units, the measurements, except for the penis, which was 7.3 by 3 cm., were about the same. The pubic hair was scanty but as much as 5.1 cm. long. July 16, after a total of 34,720 units had been administered, the penis measured 7 by 2.9 cm., the right testis 2.5 by 1.9 cm. and the left testis 3.2 by 1.9 cm. The pubic hairs were about the same as on the last examination.

His basal metabolic rate was minus 4 per cent June 17, 1936, and minus 5 per cent April 10, 1937. During this period his weight increased from 30.7 Kg. to 38.2 Kg. and his height increased from 139 cm. to 148 cm. Roentgenograms of his knees and elbows taken March 8, 1937, and Nov. 6, 1937, show the development of the epiphyses to be normal.

The effect of treatment in this case is shown in figure 3.

CASE 3.—R. S., a boy aged 4 years and 11 months and of normal body contour, was referred to us by the Pediatrics Department Nov. 23, 1936, because of supposed failure of descent of the left testis. There was a history of undescended testis in a second cousin on each side of the family. The

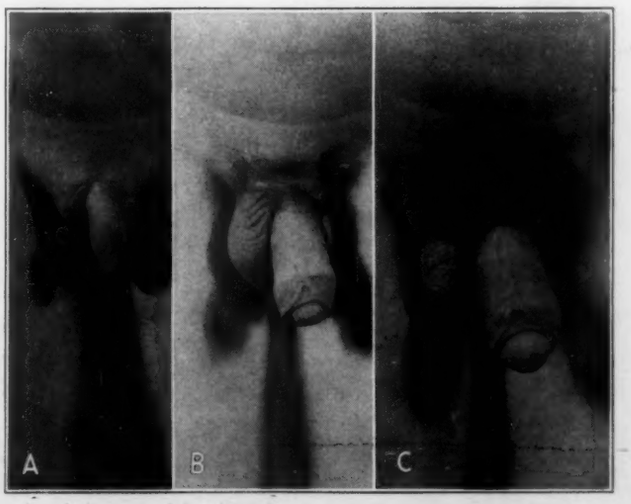

Fig. 2.—Stages in development in case 1: *A*, July 18, 1936, before treatment; *B*, Dec. 12, 1936, after 19,970 rat units of anterior pituitary-like principle; *C*, April 15, 1937, after 39,970 rat units of anterior pituitary-like principle.

patient was reported to have been born with a swelling "in the region of the right testis," which disappeared soon after the application of heat. At the time of the first examination it was thought that the peritoneal process was felt in the scrotum on the left, but the testis itself was not felt. In view of our subsequent finding of a small atrophic mass on the left side of

the scrotum we are inclined to believe that the testis may have been in the scrotum at the time of the first examination but was not felt because of its small size. However, we must also admit the possibility that the descent of this small atrophic testis may have been produced by treatment. The penis measured 3.8 by 1.6 cm. and the right testis 2.9 by 1.7 cm. Treatment with A. P. L. and maturity factors [9] was started Dec. 3, 1936. The dose was quickly increased to 200 rat units of A. P. L. and 25 rat units of maturity factors six times a week. December 11, after he had had a total of 1,120 units of A. P. L. and 150 units of maturity factors, the penis measured 4.1 by 2.9 cm. and the right testis 3.8 by 2.9 cm.; the left testis was reported not to be palpable. The prostate was not palpable. Jan. 15, 1937, after he had received 4,320 units of A. P. L. and 550 units of maturity factors, the penis measured 6.7 by 2.1 cm. and the right testis 3.2 by 1.7 cm. We were not certain whether a small mass in the left side of the scrotum represented the left testis or not. The prostate had enlarged and erections had become more frequent. February 18, special strength A. P. L., which contained 500 rat units per cubic centimeter, was substituted for the weaker solution, which contained 100 rat units per cubic centimeter, and by February 23 the dose had been increased to 1,000 units six times a week. The dose of maturity factors remained unchanged. February 26, after he had had a total of 12,520 units of A. P. L. and 1,175 units of maturity factors, the penis measured 5.9 by 2.2 cm. and the right testis 3.2 by 2.2 cm. A small atrophic mass in the left side of the scrotum was thought to be the left testis. The prostate was about 1.5 cm. in diameter and bulged into the rectum. April 9, after he had had 29,020 units of A. P. L. and 1,925 units of

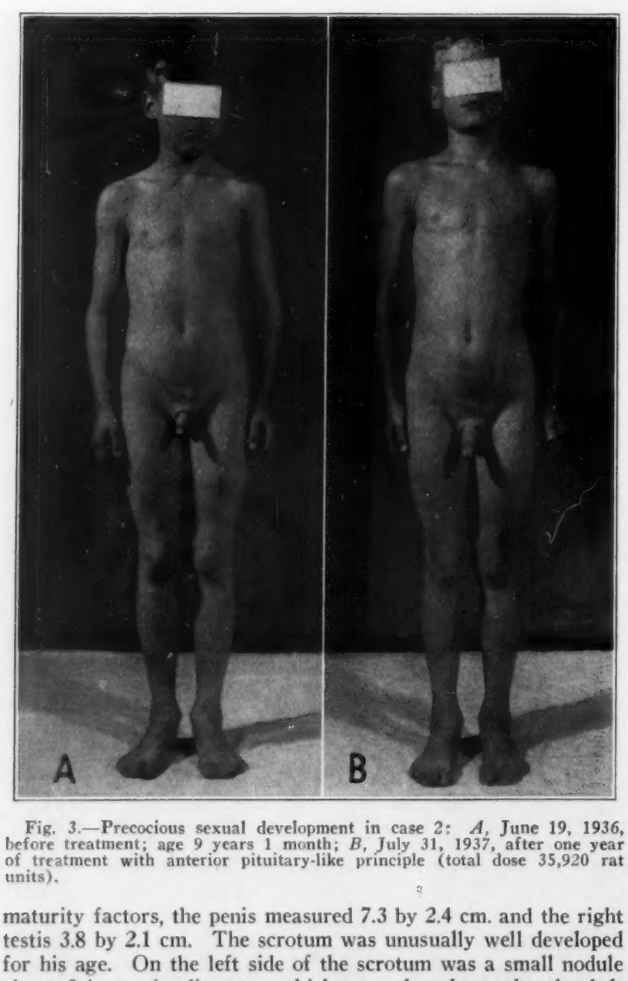

Fig. 3.—Precocious sexual development in case 2: *A*, June 19, 1936, before treatment; age 9 years 1 month; *B*, July 31, 1937, after one year of treatment with anterior pituitary-like principle (total dose 35,920 rat units).

maturity factors, the penis measured 7.3 by 2.4 cm. and the right testis 3.8 by 2.1 cm. The scrotum was unusually well developed for his age. On the left side of the scrotum was a small nodule about 0.4 cm. in diameter which was thought to be the left testis. The prostate was full and measured about 3 cm. in diameter. There had been a definite growth of pubic hair, which was as much as 2.5 cm. long. The patient missed some of his appointments, but by July 16, 1937, he had had a total of 55,020 units of A. P. L. and 3,225 units of maturity factors. On this date the penis measured 6.7 by 2.5 cm. and the right testis 3.2 by 1.6 cm. A small nodule in the left side of the scrotum was thought to be the left testis because what seemed like a vas deferens was felt above it. The left side of the scrotum was not as well developed as the right. The prostate bulged into the rectum and was about 2.5 cm. in diameter. Pubic hair was as much as 3.8 cm. long. Although there was

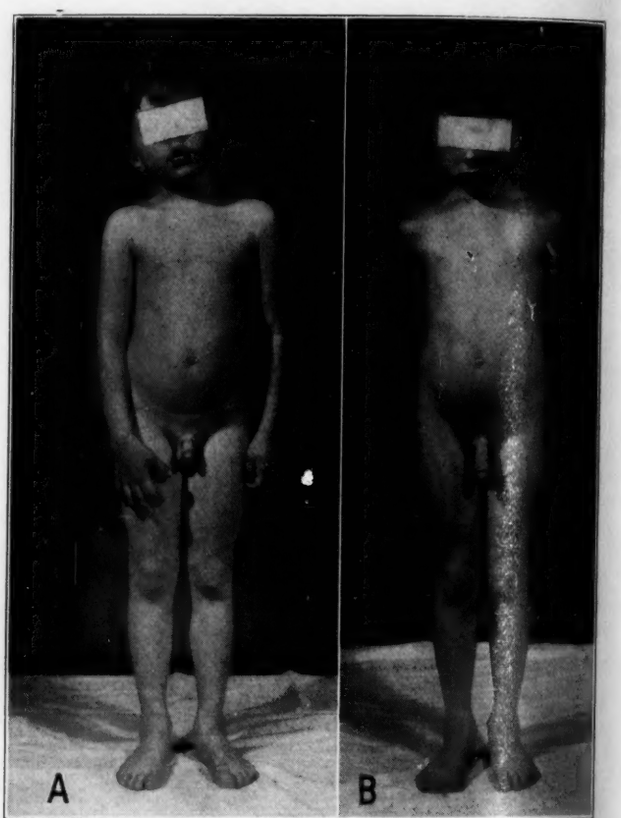

Fig. 4.—Precocious sexual development in case 3: *A*, Dec. 2, 1936, before treatment; age 4 years 11 months; *B*, July 17, 1937, after seven and one-half months of treatment with anterior pituitary-like principle (55,020 rat units) and gonadotropic maturity factors (3,225 units).

some hair on the sides of his face, it was uncertain whether it had increased any with treatment. His voice seemed husky, but the mother was unwilling to admit that any change had occurred. She also stated that there had been no change in the patient's virility.

From Dec. 2, 1936, until April 10, 1937, four basal metabolic rates varied from plus 1 to minus 10 per cent. During this period his weight increased from 20.1 Kg to 22.3 Kg. and his height from 112 cm. to 114 cm. March 9, 1937, the x-ray department reported that the ossification center for the capitellum was present in the elbows. No other ossification centers were seen. All the ossification centers were present in the knees and were fairly well developed.

The effect of treatment in this case is shown in figures 4 and 5.

COMMENT

In all these patients the marked increase in the size of the penis, scrotum and prostate and the development of pubic hair furnishes a striking contrast to the absence of a clearcut increase in the size of the testis. At the end of treatment the testes were small in comparison with other parts of the genitalia. In this respect, our results were similar to those obtained in animal experiments.

The growth of pubic hair was more marked in case 1 than in the other cases.

In all cases the response to the stimulus was prompt. In case 1 the penis grew 1.3 cm. in forty-eight days, although the patient had received only 7,570 units of

9. We used the anterior hypophysial maturity factors (gonadotropic) of Ayerst, McKenna and Harrison.

follutein. In case 2 the penis increased 1.3 cm. in eleven days, although a total of only 1,520 units of follutein had been administered. In case 3 some increase in the size of the penis was noted in eight days, although only 1,120 units of A. P. L. and 150 units of maturity factors had been administered.

The growth of the genitalia seemed to reach a maximum quickly. In case 1 the penis was about as long after only a little more than four months of treatment as at the end of eleven months, in case 2 it was about as large at the end of four and one-half months of treatment as at the end of eleven and one-half months, and in case 3 it was nearly as large after one and one-half months of treatment as it was at the end of eight and one-half months.

The fivefold increase in the strength of A. P. L. in case 3 did not seem to exert any greater influence on the size of the genitalia than the smaller dose. In several other cases we have been impressed by the marked susceptibility to this growth stimulus, the striking increase in size of the genitalia occurring with

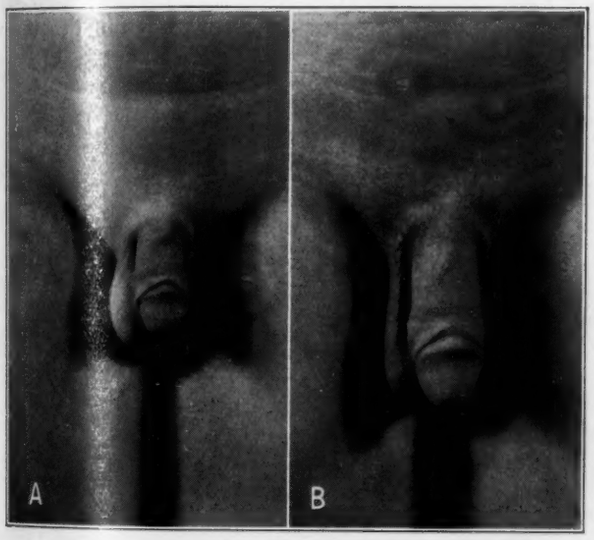

Fig. 5.—Close-up of genitalia in case 3: *A*, Dec. 2, 1936, before treatment; *B*, July 17, 1937, after 55,020 rat units of anterior pituitary-like principle and 3,225 units of gonadotropic maturity factors.

comparatively small doses. On the other hand, it cannot be concluded that there is a lack of susceptibility to the stimulus unless very large doses (from 2,000 to 2,500 rat units daily) are administered.

It is to be noted that although this material produced descent of the right testis in case 1, it failed to correct the associated congenital abnormality: the hernial pouch. This grew into the scrotum as the testis descended and failed to become obliterated, as happens in normal development, to form the tunica vaginalis.

The susceptibility of the genitalia to this growth stimulus appears to be greater before than after puberty, but even after puberty it is not completely absent. We have produced genital growth by the use of this material in a child as early as the age of 3 years and in a man as late as the age of 37 years. The various factors which influence the susceptibility of the genitalia to it and the mechanism of its action are not precisely defined. We do not know whether spermatogenesis occurred in the subjects of this study or not. In case 2 no spermatozoa were found in one examination of the seminal fluid. From observations in man and animals it would appear reasonably well established that in the male the interstitial cells may show marked development without much change in the seminiferous tubules, and the activity of the interstitial cells seems to be responsible for the development of secondary sexual characteristics. The marked growth in other parts of the genitalia with little or no increase in the size of the testes may be consistent with the hypothesis that in the testis the anterior pituitary-like principle stimulates primarily the interstitial cells. Increased activity of the interstitial cells of the testis may be responsible for the growth of the penis, prostate, scrotum and pubic hair. From a biologic point of view, the problem is whether this material (or a related substance) is involved in normal puberty or whether it merely mimics the changes that occur during this period. If it is involved, it must be only one factor, because normal development of the testis apparently cannot be explained by the presence of this material alone. In view of its production in large quantities in the early months of pregnancy, it is pertinent to inquire whether it plays an essential role in the early development of the genitalia.

Premature puberty is said to be produced in man by tumors of the adrenal cortex and pineal gland and occasionally by tumors of the testes and lesions of the midbrain.[10] Its relation to pituitary[11] disturbances is open to question. There are cases which can be explained only by a marked familial tendency to precocious development.[12] In animals, thymus extracts are reported to be powerful sex stimulants.[13] It would

10. (*a*) Krabbe, K. H.: Relation Between the Adrenal Cortex and Sexual Development, New York State J. Med. **114:** 4 (July 6) 1921. (*b*) Gordon, M. B., and Browder, E. J.: Suprarenal Carcinoma with Pubertas Praecox in a Boy Three Years of Age, Endocrinology **11:** 265 (July-Aug.) 1927. (*c*) Fordyce, A. D., and Evans, W. H.: Suprarenal Virilism, with Report of Two Cases: Pathological Notes, Quart. J. Med. **22:** 557 (July) 1929. (*d*) Player, L. P., and Lisser, H.: Adrenal Sexual Precocity: Caused by Tumors of Adrenal Cortex; Case Report of Boy Five Years of Age, Urol. & Cutan. Rev. **37:** 758 (Nov.) 1933. (*e*) Quinby, W. C.: Some Dysfunctions Caused by Neoplasm Especially of the Adrenal Gland, J. Urol. **32:** 321 (Oct.) 1934. (*f*) Langeron, L., and Danès, A.: Le syndrome génito-surrénal, Paris méd. **2:** 145 (Aug. 17) 1929. (*g*) Horrax, Gilbert, and Bailey, Percival: Pineal Pathology: Further Studies, Arch. Neurol. & Psychiat. **19:** 394 (March) 1928. (*h*) Rowlands, R. P., and Nicholson, G. W.: Growth of Left Testicle with Precocious Sexual and Bodily Development (Macro-Genito-Somia), Guy's Hosp. Rep. **79:** 401 (Oct.) 1929. (*i*) Stewart, C. A.; Bell, E. T., and Roehlke, A. B.: An Interstitial Cell Tumor of the Testis with Hypergenitalism in a Child of Five Years, Am. J. Cancer **26:** 144 (Jan.) 1936. (*j*) Sutherland, D. M.: Macrogenitosomia, Brit. J. Surg. **20:** 343 (Oct.) 1932. (*k*) Sacchi, cited by: (*l*) Reuben, M. S., and Manning, G. R.: Precocious Puberty, Arch. Pediat. **39:** 769 (Dec.) 1922; **40:** 27 (Jan.) 1923. (*m*) Gardiner-Hill, H.: Abnormalities of Growth and Development: The Clinical and Pathological Aspects, Brit. M. J. **1:** 1241 (June 19), 1302 (June 26) 1937. (*n*) Le Marquand, H. S.: Suprarenal Virilism (Pubertas Praecox), Proc. Roy. Soc. Med. **25:** 804 (April) 1932. (*o*) Dorff, G. B., and Shapiro, L. M.: Clinicopathologic Study of Sexual Precocity with Hydrocephalus; Report of Two Cases Occurring in Females with Postmortem Observations in One, Am. J. Dis. Child. **53:** 481 (Feb.) 1937. (*p*) Heuyer and Vogt: Un cas de macrogénitosomie précoce, Arch. de. méd. d. enf. **33:** 737 (Dec.) 1930. (*q*) Ford, F. R., and Guild, H.: Precocious Puberty Following Measles Encephalomyelitis and Epidemic Encephalitis, with a Discussion of the Relation of Intracranial Tumors and Inflammatory Processes to the Syndrome of Macrogenitosomia Praecox, Bull. Johns Hopkins Hosp. **60:** 192 (March) 1937.

11. In the immature female rat and monkey, sexual maturity may be produced by anterior pituitary transplants and extracts from both mature and immature animals, but the male is much less susceptible: Smith, P. E., and Engle, E. T.: Experimental Evidence Regarding the Rôle of the Anterior Pituitary in the Development and Regulation of the Genital System, Am. J. Anat. **40:** 159 (Nov.) 1927. Engle, E. T.: The Pituitary-Gonadal Relationship and the Problem of Precocious Sexual Maturity, Endocrinology **15:** 405 (Sept.-Oct.) 1931. Allen, Edgar: Precocious Sexual Development from Anterior Hypophysis Implants in a Monkey, Anat. Rec. **39:** 315 (Aug. 25) 1928. Smith, P. E.: The Induction of Precocious Sexual Maturity by Pituitary Homeotransplants, Am. J. Physiol. **80:** 114 (March) 1927. Zondek, Bernhard: Ueber die Funktion des Ovariums, Ztschr. f. Geburtsh. u. Gynäk. **90:** 372, 1926. Aschheim, Selmar: Ueber die Funktion des Ovariums, ibid. **90:** 387, 1926. Pighini, G.: Ormone preipofisario ed apparato genitale mas chile contributo al problema della maturazione puberale, Biochim. e terap. sper. **20:** 161 (March 31) 1933. Since puberty may be produced prematurely in this manner, it is important to know what makes puberty occur normally when it does.

12. Rush, H. P.; Bilderback, J. B.; Slocum, D., and Rogers, A.: Pubertas Praecox (Macrogenitosomia), Endocrinology **21:** 404 (May) 1937. Orel, H.: Kleine Beiträge zur Vererbungswissenschaft, Ztschr. f. d. ges. Anat. **13:** 691, 1928. Zondek, H.: The Diseases of the Endocrine Glands, Baltimore, William Wood & Co., 1935.

13. Rowntree, L. G.; Clark, J. H.; Hanson, A. M., and Steinberg, Arthur: Biologic Effects of Thymus Extract (Hanson): Accruing Acceleration in Growth and Development in Five Successive Generations of Rats Under Continuous Treatment with Thymus Extract, Arch. Int. Med. **56:** 1 (July) 1935.

be desirable to know whether the mechanism involved in the production of premature sexual development in these pathologic conditions is similar to the mechanism involved in its production from the administration of the anterior pituitary-like principle.

The association of premature puberty with interstitial cell tumors of the testis is of interest, in view of the fact that the anterior pituitary-like principle is known to stimulate the interstitial cells. It is also of interest that, in patients showing precocious development of the genitalia associated with tumors of the adrenal cortex, the testis shows little or no increase in size and spermatogenesis apparently does not occur.[14] The absence of a familial tendency in the cases reported in this paper, the failure of careful examination to reveal any of the other known causes of premature development, and the prompt response of the genitalia to treatment in these and many other cases leave little doubt that genital growth was caused by the anterior pituitary-like principle.

These data serve as a warning against the indiscriminate use of this material in patients with undescended testes. It has been shown elsewhere that it has a very definite role in the treatment of this condition, but the patients receiving it must be followed carefully and its administration stopped before genital growth becomes excessive.

It is too early yet to know what influence, if any, precocious sexual development caused by this material exerts on skeletal growth. The fact that bone development was normal in the three cases reported does not mean that it will continue to be.

SUMMARY

Changes simulating premature puberty have been produced in three boys, 4, 7 and 9 years old, by the administration of the anterior pituitary-like principle from the urine of pregnant women. These changes consisted of an increase in the size of the penis, scrotum and prostate, increased masculinity, a growth of pubic hair and a change in the pitch of the voice.

In contrast to the marked growth of other parts of the genitalia, the testes showed very little change in size. All the boys were of normal body contour and had a normal sized penis before treatment was started. The boy 4 years old had an atrophic left testis which did not increase in size with treatment. The other two boys had undescended testes and in one of them an unsatisfactory attempt at surgical correction had been made. In both patients the testes descended to the normal position with treatment.

Some genital growth has been produced with this material in sixteen of thirty-three patients with undescended testes, and in fourteen patients, including two of the three boys who developed changes simulating premature puberty, it was marked. However, descent was produced in only 23 per cent of the total number of undescended testes, showing that genital growth may occur without descent of the testis.

The treatment for undescended testes with the anterior pituitary-like principle should be stopped before genital growth becomes marked. If this rule is followed, it would appear that in the present state of our knowledge its routine use is justifiable and desirable.

700 North Michigan Avenue—55 East Washington Street.

14. Krabbe,[10a] Gordon and Browder,[10b] Langeron and Danès.[10f]

RENAL MOBILITY

ELMER HESS, M.D.

ERIE, PA.

Renal mobility has been studied for years. Albarran was perhaps the first to notice clinically that immobility of the kidney during respiration was a helpful diagnostic sign in perinephritis with adhesions to the renal fascia.

In 1925 and for many years since then, Mathé has called attention to the lack of normal motion in certain perirenal inflammatory conditions and perhaps was among the first, if not the first, to take advantage of the fact that the pyelogram taken in the erect posture and a second pyelogram taken in the prone posture would show limitation of renal motion and would aid him in the diagnosis of many obscure perirenal pathologic conditions.

About a year ago, following five years of observation, Hilgenfeldt reported a study of renal mobility. He took pyelograms in both the prone and the upright position, in deep inspiration and expiration in the prone

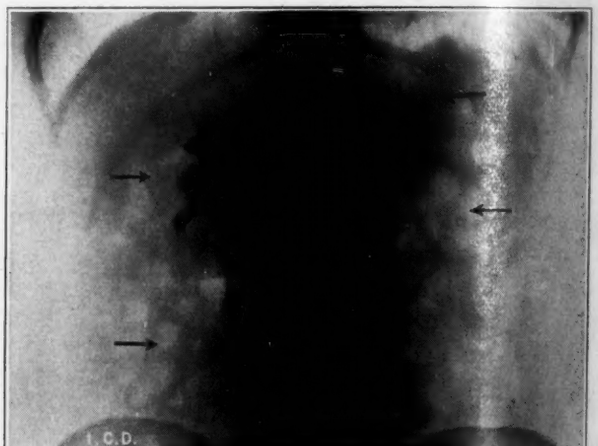

Fig. 1 (case 1).—Excessive respiratory mobility. Both kidneys within normal limits.

position, and studied the variations in kidney position under various types of pathologic conditions. These observations have often been extremely helpful in diagnosing obscure lesions involving pathologic changes in and around the kidney.

About a year ago Dr. Ralph Bacon, who with his associate Dr. B. Swayne Putts does all the roentgenologic work in the urologic department at St. Vincent's Hospital, suggested an inspiration and expiration pyelogram on the same film in the study of some of our difficult diagnostic problems. He had become convinced of the value of such a study after several years of close cooperation with the urologic service and suggested to me that such an extra pyelogram might be of great value in our work. On my recalling to him Mathé's earlier work on the postural movement of the kidney, he began to search the literature for any light that it might give us on this subject. He found that Chevassu in 1933 reported a case of perinephric infection in which during fluoroscopy he was satisfied that the contrast filled kidney pelvis appeared absolutely motionless during deep inhalation, that Mathé had demonstrated lack of renal mobility in perinephric

President's address, read before the Section on Urology, Pan American Medical Association, Havana, Cuba, Jan. 17, 1938.

infection, and that Hilgenfeldt had written his comprehensive report. Other than this the literature had little to offer with the exception of a report by myself given in a discussion before this society in July 1931 on renal sympathectomy at Mexico City. At this time I mentioned that the pyelogram taken in inspiration and expiration would demonstrate the nonfixation of the normal kidney and that after the sympathectomy, because of adhesions between the capsule and Gerota's fascia, the kidney could be placed in whatever position the operator desired. These facts had been demonstrated by pyelography:

> In movable kidneys as well as in others, after operation, the kidney will be found to be fixed in a fairly high position by the surrounding adhesions. There will be practically no mobility and the ureter will be found straight and upon checking in the sitting or upright position the kidney will not descend nor will the ureter kink. As a matter of fact, if the kidney descends several inches before the adhesions form, and becomes fixed in a low position, it will no longer give symptoms. It does not matter really just where the kidney becomes fixed postoperatively just so it is fixed and its ureter is straight and not kinked.

It is plainly evident that renal mobility has not been given the consideration in the study of urologic problems that it justly deserves. The kidneys are loosely fixed by vascular pedicles, aberrant vessels, fascias, fatty beds and intra-abdominal pressures and are therefore rather freely movable under normal conditions. Posture always causes definite changes in their positions. Breathing has a distinct bearing on their mobility, both in the upright and in the prone positions. Various intraperitoneal and extraperitoneal pathologic conditions will have a direct bearing not only on the position of the organs but on their mobility as well. Thoracic disease will likewise influence both position and mobility. Pathologic and congenital abnormalities of the kidneys themselves will influence to a marked degree both position and movability. Anything that can establish a normal position and normal movements of the organs, together with comparison studies of abnormal positions and movements, must be an aid in diagnosis and will be a distinct help in the planning of any surgical procedure contemplated.

I have been interested in the study of renal position and mobility for years and, as more and more opportunity has been afforded for the study of these phenomena, definite conclusions have become logically evident. Many of these will of necessity have to be modified as time goes on and more experience is gained, but a review of some personal experiences may at this time prove stimulating.

RESPIRATION PYELOGRAPHY

Dr. Bacon has coined the word "respiration pyelography" and I am now using it more or less as a routine, particularly when I have a patient who will intelligently cooperate.

TECHNIC

With the catheters in place we first take a plain roentgenogram followed by a plain pyelogram with the patient simply holding his breath, after which we use a third film with a fast cassette. The patient is now instructed to take a long breath and hold it and the first exposure is made. The patient then is instructed to exhale completely and remain quiet while the second exposure is made on the same plate. These pyelograms are all made in the prone position.

First I wish to discuss normal respiration pyelography. The one striking feature about these cases is the apparent kinking of the normal ureter in deep inspiration and the occasional movement that takes place laterally in pyelograms that we consider normal. It must be remembered that a urogram that shows a kink in the ureter with normal pyelographic shadowing and cupping must be interpreted as a kink only after it is known whether the pyelogram was made in deep inspiration or expiration. I think these pyelograms show the necessity for great care in the interpretation of ureteral kinks. Surely a respiration pyelogram will quickly show whether these tortuosities have any real pathologic significance.

The diaphragm should move normally when deductions are made of renal mobility and fixation. If the diaphragm is immobilized by intrathoracic or by pararenal pathologic conditions, the kidney will not move in respiration. If for any reason it becomes necessary to section any nerves such as the intercostal groups, if thoracoplasty is necessary or vagus nerve injuries are

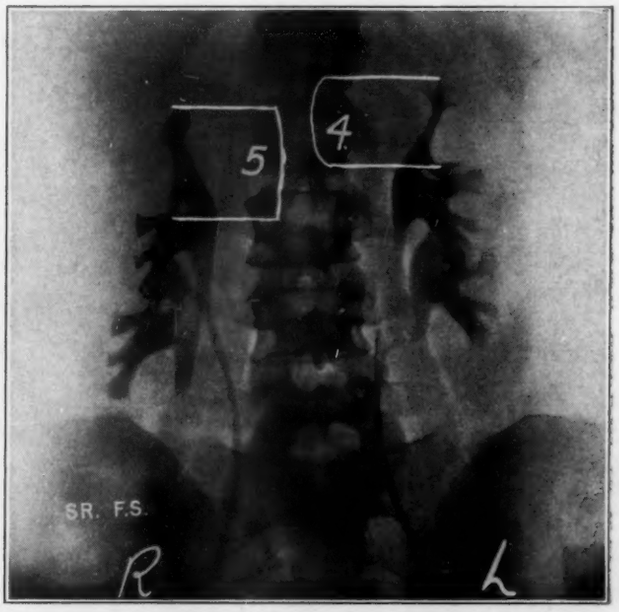

Fig. 2 (case 4).—Normal renal mobility.

encountered, these of course will all influence renal mobility because of the paralysis of the diaphragm.

According to Hilgenfeldt, kidney displacement is not entirely dependent on the movement of the overlying diaphragm but depends somewhat on the abdominal muscles, the opposite diaphragm and the attachments of the prerenal fascia to the duodenum and colon. As these organs move with the diaphragm the ureteral attachment to the postparietal peritoneum several centimeters below the renal pelvis may likewise be influenced by the movement of these structures. Therefore a fluoroscopic study of the diaphragmatic movements in inspiration and expiration is essential.

RESPIRATION PYELOGRAPHY SHOWING NORMAL MOBILITY OF THE KIDNEYS

CASE 1.—C. D., a woman, aged 42, admitted to the urologic department at St. Vincent's Hospital Dec. 7, 1937, complained of pain in the left lower abdominal quadrant. Pus cells were found in the urine. She had a stricture of the lower left ureter which might be spastic and not inflammatory in character. Cultures from the left kidney yielded a staphylococcus.

Normal pyelograms showed some blunting of the calices on the right side, although this was symptomless and normal. Every picture showed spasticity of the right renal pelvis.

A respiration pyelogram showed normal mobility of the right kidney and considerable mobility of the left kidney with some definite lateral movement. This picture (fig. 1) is shown to point out two facts: first, that, if a picture is taken in deep inspiration, what is normally thought to be a ptotic kidney might prove to be a perfectly normal kidney if taken in deep expiration; second, to show also the marked normal motion in deep respiration of a reasonable normal organ.

CASE 2.—M. A. G., a woman, aged 32, admitted Dec. 13, 1937, gave a history of pain in the right side typical of renal colic, with slight bladder disturbances on voiding. The pain was sufficiently severe to require severe hypodermics. There was no history of menstrual disturbances or vaginal bleeding. The preoperative diagnosis was calculus, right ureter.

Pyelograms by Dr. Putts did not reveal any calculi. The right pyelogram gave a normal picture. The left pyelogram showed a smaller pelvis with calices and their terminals changed, suggesting a chronic infection. Tuberculosis had to be considered. Both kidneys were prolapsed 2 inches. The ureters in the pelvis appeared pushed outward, more than normal, probably because of the soft tissue mass noted.

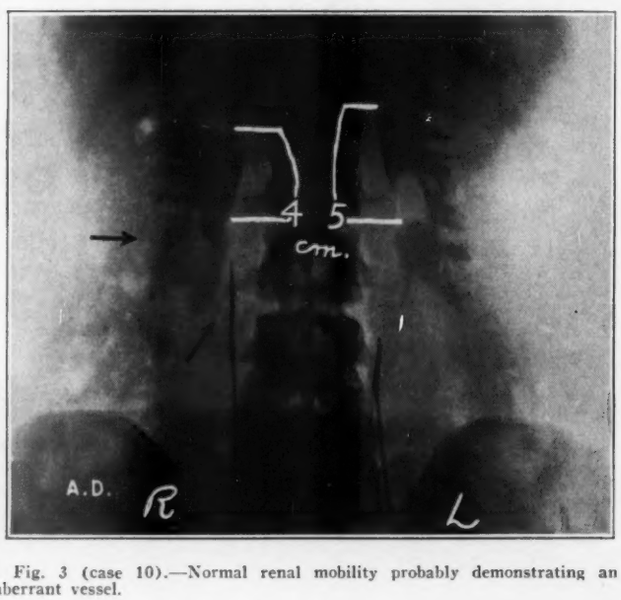

Fig. 3 (case 10).—Normal renal mobility probably demonstrating an aberrant vessel.

There was a definite obstruction in the lower right ureter. Pelvic examination revealed a mass irregularly nodular and immovable, filling the entire pelvis.

The final diagnosis was inoperable carcinoma of the pelvic organs with beginning obstruction to the right ureter from the mass.

Respiration pyelograms showed considerable movement and fairly normal kidneys.

CASE 3.—W. B., a man, aged 42, an outpatient, admitted to the urologic department at St. Vincent's Hospital July 22, 1937, had a bad stricture of the urethra with some dilatation of the posterior urethra and hypertrophied dilatation of the bladder. A normal pyelogram was made which was essentially negative. A respiration pyelogram was made which showed normal mobility on both sides without any dilatation of the upper urinary tract from the stricture.

CASE 4.—Sr. F. X. came to the hospital Nov. 8, 1937, with the diagnosis of possible tuberculous nephritis. For some time organisms resembling the tubercle bacillus had been found in the specimens of urine, although she had never had any direct symptoms. Examination revealed fairly normal kidneys and a normal bladder. A respiration pyelogram (fig. 2) showed normal motion. The organism diagnosed as the tubercle bacillus was later identified as the smegma bacillus.

CASE 5.—R. S., a woman, aged 32, admitted July 12, 1937, complained chiefly of frequency and urgency of urination and pain in the left part of the back. Cultures of urine from the left kidney yielded a colon bacillus; from the right kidney no culture. A diagnosis of left pyelonephritis with some nephrosis was made. The respiration pyelogram showed bilateral motion on both sides, which was considered virtually normal.

CASE 6.—M. M., a woman, was admitted July 20, 1937, with the diagnosis of bilateral pyelonephritis with normal movement.

Pyelograms by Dr. Bacon did not reveal opaque calculi. The pyelograms appeared normal except for a slight nephrotic change on the left side.

CASE 7.—M. S., a woman, aged 38, was admitted July 26, 1937, with the diagnosis of bilateral pyelonephritis, more marked on the right side.

Pyelograms by Dr. Bacon revealed no evidence of opaque calculi. The pyelograms appeared approximately normal.

A respiration pyelogram revealed normal movement.

CASE 8.—J. S., a man, aged 37, admitted Aug. 2, 1937, complained of smarting and burning in the rectum and penis. Three large stones were found in the bladder.

Pyelograms by Dr. Putts revealed three calculus-like shadows in the bladder region. The right pyelogram was normal. Slight dilatation was noted in the pelvis of the left kidney. The calices were also slightly changed, so that some nephrosis was indicated.

A respiration pyelogram was essentially negative with normal movement.

CASE 9.—C. M., a man, aged 47, admitted July 14, 1937, had bloody urine and pain in the left hypogastrium and the left loin. The diagnosis was bilateral pyelonephritis.

Pyelograms by Dr. Putts did not reveal any calculi. The pyelograms were approximately normal.

A respiration pyelogram revealed normal renal movement.

I have selected this series of cases which demonstrate the normal movement of the kidneys in deep inspiration and deep expiration and which show that there was no perirenal or pararenal pathologic condition and that if there was it had not involved the capsule of the kidney or the fascia about the pelvis and the ureter. Several of these cases, however, have been diagnosed as bilateral pyelonephritis but the inflammatory condition is limited to the kidney itself.

RESPIRATION PYELOGRAPHY AS CONCERNS ABERRANT VESSELS

If an aberrant vessel to the lower pole of a kidney is the cause of a nephrosis, or if bands in the periureteral fascia are the cause of kinks at the ureteropelvic junction, a respiration pyelogram should be of considerable value in helping to make the diagnosis.

CASE 10.—A. D., a woman, aged 28, admitted July 19, 1937, complained chiefly of intermittent pain in the right side with considerable functional bladder disturbance. Cultures from both kidneys yielded colon bacilli. The cystoscopic and pyelographic diagnosis was right hydronephrosis, probably due to an aberrant vessel causing a constriction at the ureteropelvic junction on the right side.

A respiration pyelogram (fig. 3) seemed to emphasize this kink, although there was plenty of motion in the kidney and a kink also appeared on the left side during deep inspiration, although it was completely obliterated during expiration. It was believed that the possible limitation of motion of the right side as compared to that of the left may be accounted for by an aberrant vessel. This, it was considered, might not be an aberrant vessel but might be due also to fibrous bands. Operation was not performed.

Careful study of this pyelogram will show that the kink at the ureteropelvic junction is very much emphasized on deep inspiration, although the kidney moves virtually normally in the respiration pyelogram. It is my belief that in this case we are dealing with an aberrant vessel, although the patient has not come to operation for verification of that diagnosis.

Where infections such as carbuncles, multiple cortical abscesses and other lesions which extend from the parenchyma of the kidney to the capsule and through the capsule are found, there will be a definite limitation of motion on the affected side as compared to that of its fellow. This is ably demonstrated by case 11:

CASE 11.—H. R., a man, aged 69, was admitted Nov. 20, 1937, with a history of recurrent attacks of severe right-sided loin pain and some hematuria.

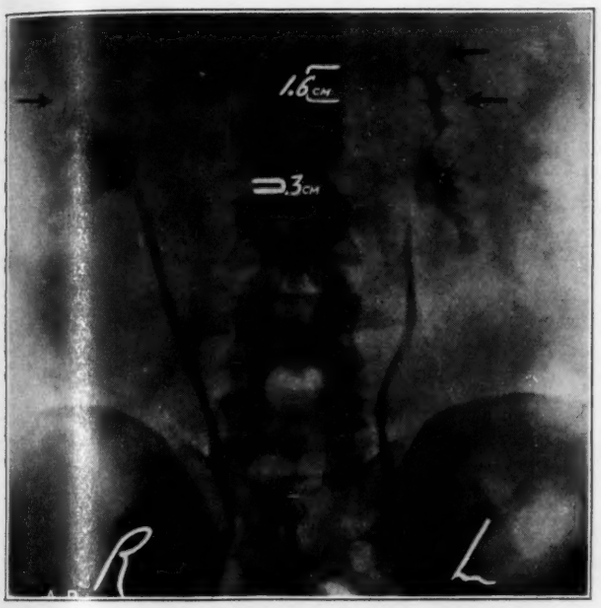

Fig. 4 (case 12).—Perinephric abscess behind and above kidney

Pyelograms revealed no evidence of calculi. The left pyelogram was approximately normal. The pelvis and calices on the right side together with the upper end of the ureter were somewhat changed, almost lead-pipe in type. An area of destruction was noted in and beyond the median calix and in the upper outer part of the inferior calix. The appearances suggested a destructive lesion which would be best explained by neoplasm or infection, most likely tuberculous.

A respiration pyelogram was made showing fairly normal movement of the left kidney, while the right moved probably 60 per cent of normal. Fluoroscopy showed that the diaphragms moved freely. The urologic opinion on this case was that there was a chronic inflammatory disease of the kidney, probably tuberculous, although neoplasm could not be ruled out. As a result of what we consider a partial limitation of motion it was considered that this kidney had some perirenal inflammatory adhesions more or less fixing it. At operation the presence of marked perirenal adhesions was noted and the condition in the kidney was neither tuberculous nor neoplastic but was due to a badly infected infarct.

This fixation is further exemplified by perirenal abscess formation. Whether the perirenal abscess is caused by a coalescence of cortical abscesses extending through the capsule into the perinephric fat or whether it is caused by emboli of organisms in the vessels of the perirenal fat and is primary there is of little moment.

In these cases the diagnosis may be made fairly early. The diaphragm will not be limited in its motion but the kidney will be as soon as the infection fixes the capsule of the kidney to Gerota's fascia, or as soon as the kidney is immobilized by an abscess within Gerota's fascia. This is beautifully demonstrated by case 12:

CASE 12.—A. P., a man, aged 36, admitted to the urologic department at St. Vincent's Hospital Dec. 7, 1937, had been in the hospital for a considerable time with an undiagnosed septic condition. He was transferred to the urologic service for check-up and survey. Cultures from the urine of the right kidney yielded the staphylococcus.

Pyelograms revealed no opaque calculi. The right psoas shadow was obliterated and the renal shadow on this side could not be made out. The pyelogram on the left was normal. The pyelogram on the right showed evidence of slight nephrosis. The pelvis on the left side was 5 cm. from the midline; on the right side it was 7 cm. away and had the appearance of being depressed along its upper surface. Similarly the hepatic flexure of the colon was displaced inward and downward. Slight haziness overlay the entire upper right quadrant. Fluoroscopy of the diaphragm showed that both sides moved slightly but within normal limits.

Respiration pyelography by Dr. Bacon (fig. 4) showed that the left kidney moved downward 1.6 cm. during the respiratory phase. The right kidney moved downward 0.3 cm. and outward about the same distance. This lack of craniocaudad movement is indicative of a perinephric infection on the right, behind and above the kidney.

It will be noted that the diaphragms move freely but that the kidney is anchored in position as a result of the collection of pus within Gerota's fascia. The large colon can be seen pushed toward the midline.

In contradistinction to the diagnostic information that can be obtained from a respiration pyelogram in perinephric abscess are the findings of a paranephric collection of pus. In the subdiaphragmatic collections of pus the diaphragm is fixed; therefore there is no motion of the kidney in the respiratory pyelogram, either laterally or up or down. This is a splendid differential diagnostic point and the following case demonstrates this:

CASE 13.—M. L., a girl, aged 15, admitted to the urologic department Nov. 11, 1937, had been in the hospital for a considerable period with an undiagnosed elevation of temperature. A pararenal abscess was finally considered as the diagnosis.

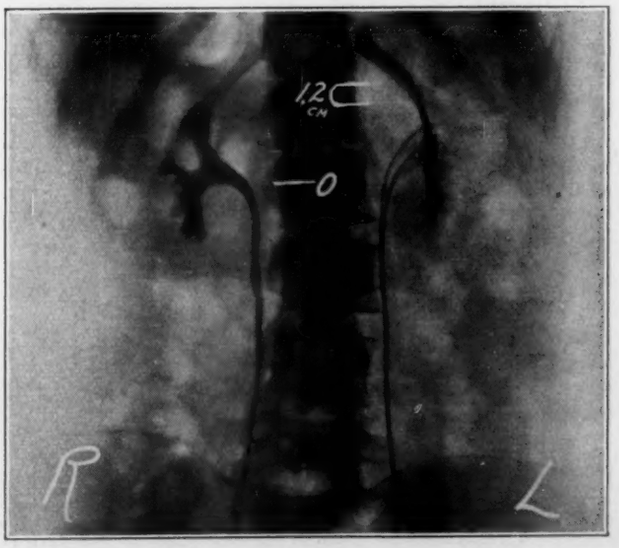

Fig. 5 (case 13).—Subdiaphragmatic abscess. Diaphragm does not move. Kidney does not move.

Pyelograms revealed no evidence of opaque calculi. Slight blunting of the superior minor calix was present in the right kidney. The pyelograms were otherwise normal.

A respiration pyelogram (fig. 5) by Dr. Bacon demonstrated 1 cm. of motion of the left kidney and no motion of the right kidney. The lack of motion of the right kidney was ascribed to the previously described immobilization of the right diaphragm, which had been present throughout the weeks of study.

On several occasions prior to the urologic study the right diaphragm had been completely immobilized. Owing to the fact that the right kidney did not move in either inspiration or expiration and the fact that the right diaphragm likewise did not move, it was considered that movement of the kidney was not due necessarily to perinephric pus or adhesions but that in all probability it was due to paranephric pus.

The final diagnosis was subdiaphragmatic abscess.

Hilgenfeldt calls attention to the value of postural and respiration pyelography for the localization of foreign bodies, such as calculi in the kidney pelvis and ureter. However, under ordinary circumstances this localization can be made by simple pyelography, although confirmation of the deductions will be more accurate if the respiration pyelogram is used.

Bacon, working with us and in ignorance of both the work of Hilgenfeldt and Mathé, says:

My interest in the problem was initiated nearly a year ago by a case in which I was able to demonstrate fluoroscopically absolute lack of motion of the posterior half of the inferior margin of the liver in a male patient, 7 years of age, who was

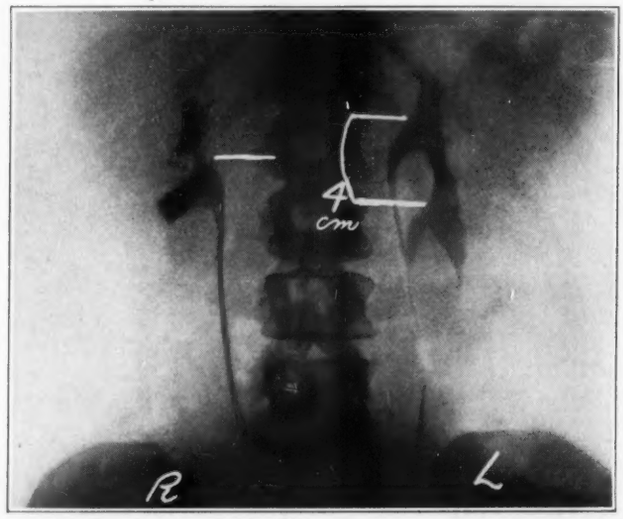

Fig. 6 (case 16).—Renal sympathectomy.

admitted to the hospital with complaints of three weeks' duration: fatigue, lassitude, afternoon temperature rise, and slight pain in the right lumbar region. White blood cells on admission, 26,500.

Roentgen study on Nov. 7, 1936, showed a liver shadow enlargement on the right side with slight diaphragmatic elevation; diaphragmatic motion was normal. During fluoroscopy, the lower margin of the liver stood out sharply; the posterior half exhibited no motion on respiration. Because of these findings plus the clinical evidence, a tentative diagnosis was hazarded of a disease process involving the posterior inferior surface of the liver.

Operative findings: An upper pole perinephric abscess.

Because of this case he studied the mobility of the kidney in extremes of expiration and inspiration in our clinic. We have cooperated with him much to our satisfaction in the diagnosis of many of our difficult problems.

He says again:

After the kidney pelvis is filled with contrast material, preferably by retrograde pyelography, a film is exposed twice, once on deep inspiration and once on forced expiration. The normal pelvis therefore casts two shadows and the distance between them represents the normal respiratory excursion in the horizontal posture. The average is 3.7 cm. but there may be considerable variation depending primarily on whether breathing is largely diaphragmatic or costal; the length of the renal pedicle may play a part. The mobility of the two kidneys is not necessarily the same. It follows that diaphragmatic motion must be normal in order to judge kidney mobility by respiration pyelography.

At the time he wrote this there had been no case of paranephric infection available for this study but since then we have had a case.

Bacon further says:

However, other conditions may cause perirenal fixation. In his perirenal sympathectomy for painful nephroptosis, Hess dissects the kidney free from the fascia, removes the nerve and lymphatic tissues from about the kidney pedicle and strips the ureters clean. He then replaces the kidney in its normal fossa but does not do nephropexy. In studying four of his patients who have been thus operated on, we have demonstrated complete immobility of the postoperative kidney in three and partial fixation in the fourth patient. Our explanation is that adhesions about the pedicle and particularly between the capsule and perirenal fascia are responsible for this fixation.

RESPIRATION PYELOGRAPHY AS A CHECK-UP ON RENAL POSITION AND MOBILITY AFTER SYMPATHECTOMY FOR OPERATIVE RELIEF OF PTOTIC KIDNEYS

When after careful study we decide that the patient is a proper subject for surgical procedure because of renal ptosis, we always do a renal sympathectomy without decapsulation and without making any attempt to do any of the operative procedures which would class the operation as a nephropexy. A review of several of our papers will explain our reasons for not doing a nephropexy.

CASE 14.—H. C., a man, admitted Sept. 25, 1937, had a right sympathectomy March 2, 1937, for pain in his right side, which was diagnosed as a nephroptotic kidney giving symptoms.

A pyelogram by Dr. Putts revealed no calculi. Part of the right twelfth rib had been removed. Double pyelograms on deep inspiration and expiration showed that movement of the right pyelogram was 1.5 cm. and 5.5 cm. on the left side. The right diaphragm had moved 3.5 cm., while the left diaphragm had moved about 1.5 cm. Pyelograms appeared approximately normal.

There was very slight up and down movement in the respiration pyelogram on the sympathectomized side and a very marked difference on the left side.

CASE 15.—E. H., a woman, aged 24, was admitted Aug. 30, 1937, for a check-up following a renal sympathectomy on the right kidney done about two months previously. She had a definite nephroptosis causing symptoms sufficient to warrant operation. She had been under observation for about eighteen months prior to operation and we felt justified in attempting to correct the ptosis in this organ. The x-ray report prior to operation was right kidney 2 inches below its usual position with a very tortuous ureter. A pyelogram was approximately normal.

A respiration pyelogram showed the kidney fixed high in the renal fossa with a straight ureter with no up and down motion during deep inspiration and deep expiration but a slight lateral motion. The patient was completely relieved of her symptoms.

CASE 16.—F. S., a woman, aged 32, admitted Sept. 1, 1937, had had constant severe right-sided renal pain. She had been admitted to the hospital on several occasions during the past four years, with a diagnosis of right nephroptosis causing symptoms. She received complete relief from her right nephroptosis when she wore a proper supporting garment. However, she finally decided that she would rather be operated on. The operation done some six months prior to the present study consisted of a simple periarterial sympathectomy with ureterolysis.

The respiration pyelogram done September 1 (fig. 6) showed the normal movement of the left kidney and distinctly showed the high position of the right kidney with a slight lateral movement on deep inspiration and deep expiration. There was no up and down motion.

COMMENT

In all these cases I would call attention to the straightness of the ureter, the high position of these kidneys and the lack of mobility of the organ that has been operated on as demonstrated by respiration urography, comparing its movement with that of the opposite kidney. There is only a slight up and down motion but there is a distinct lateral motion to the sympathectomized kidney.

I have not made the slightest attempt to hook the ptotic kidney to a rib or to fashion any other type of nephropexy support for the kidney, nor to decapsulate it. The sole procedure has been a periarterial sympathectomy with ureterolysis, extending as far into the pelvis as possible. I wish also to call attention to the fact that there has been no increase in any nephrosis that may have been present prior to operation, but that in some cases there seems to be a distinct return to the normal tonicity of the pelvis and ureter as evidenced by pyelography.

I used to make a hammock of the fascia after the technic of Deming in these cases; I used to decapsulate the kidney and I used to do nephropexy, but I think the demonstration that I have presented will prove beyond any question of doubt that it is not necessary to do any fastening by any technic on the operated organ high in the renal fossa; and I do not believe that I need any more conclusive proof that these extra procedures are unnecessary than the demonstration which I have just given. Nephropexy of any type, decapsulation and hammocking all add to the length of the operative procedure and have a tendency to destroy some renal substance, and decapsulation will at times prove a boomerang to the efficiency of the kidney later on. This has, I think, been proved by Rolnick in his recent work on the renal capsule.

In 1924 I advocated periarterial renal sympathectomy for nephroptosis. Based on my experiences in a great number of operative procedures on ptotic kidneys, I now feel that I can offer the profession the simplest efficient technic for the operative control of the ptotic kidney requiring surgical intervention.

Prior to 1930 the position and mobility of the kidney had been studied in our clinic by taking separate pyelograms in deep inspiration and expiration to check our work and results in ptotic kidneys on which sympathectomies had been done.

Hilgenfeldt's studies in the last six years, reported a year ago, have verified all my observations, and he has further used the procedure in the diagnosis of the localization of foreign bodies, for the recognition and differentiation of inflammatory diseases of the kidney and adjacent tissues, for paranephric abscess, kidney carbuncle and pyelonephritis, and the association of kidney location to inflammatory diseases in adjacent tissues, such as pancreatitis, appendicitis and tuberculosis.

Mathé should be given credit for his postural studies of kidney mobility in the diagnosis of perirenal infections.

Further study by respiration pyelography with operative verification of the results will more completely establish the value of the procedure.

CONCLUSIONS

1. Respiration pyelography should be used for the verification of the results on the kidney obtained after operative measures planned for kidney fixation.
2. The technic is simple and inexpensive.
3. Many problems of a clinical nature will be more easily solved and our knowledge of the normal and abnormal mobility of the kidney in both health and disease will be increased by the observations of those who adopt respiration pyelography as a routine procedure in their urologic diagnostic work.

8 East Twelfth Street.

INTERSEXUALITY

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AND
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The mechanism that normally governs the differentiation of the two sexes is not fully understood. It is accepted, however, that the sex of the individual is determined at the time of fertilization.[1] The union of maternal and paternal cells is considered the determining factor in the development from the embryonic bisexual "anlage" into either ovaries or testicles under the guide of the endocrine system. If such normal development—for reasons entirely unknown to us—is disturbed during any time of the embryonic life, one encounters as the product of such faulty development the anatomic picture of the intersex.

It is not intended here to enter into a review of the voluminous literature, which since von Neugebauer's[2] fundamental work in 1908 has increased steadily, but to refer briefly to a few communications pertinent to this study. A convenient review of the newer literature may be found in the recent publication by Huggins, Cohen and Harden.[3]

In this paper we present a case of intersex that was closely studied clinically, physiologically and psychologically. We report the case not only for its rarity but also because we believe that some facts of interest were found that may clarify this syndrome more definitely and may be helpful in recognizing milder grades of similar clinical manifestations.

REPORT OF CASE

History.—Miss V. D., aged 39, admitted to the Michael Reese Hospital Nov. 9, 1936, had never been sick before. The family history was irrelevant. The patient stated that, since the age of 12, increasing hair growth, deepening of the voice and conversion of the external genitalia to the present stage had gradually developed. She never had menstruated but had had two vaginal bleedings of two hours' duration at the ages of 17 and 20. In association with these progressing bodily changes marked sexual desire toward the male sex developed. In an attempt to satisfy this desire she masturbated a great deal. The patient sought medical attention for relief from the annoying libido, which precluded sleep and ability to work.

Examination (abbreviated).—The patient was well built and well nourished with a dark complexion and a fairly heavy growth of hair on both cheeks, the upper lip and chin, partly

From the Gynecological and Medical Department of the Michael Reese Hospital.

1. Allen, Edgar: Sex and Internal Secretions, Baltimore, Williams & Wilkins Company, 1932.
2. von Neugebauer, F. L.: Hermaphroditismus beim Menschen, Leipzig, Dr. Werner Klinkhardt, 1908.
3. Huggins, R. R.; Cohen, Mortimer, and Harden, Boyd: True Hermaphroditism in Man with an Endocrinologic Study, Am. J. Obst. & Gynec. **34**: 136 (July) 1937.

removed, with scar formation, by electrolysis. There was a virile hair distribution of the body. The voice was harsh but neither masculine nor feminine. The breasts were flat, the nipples were atrophic and no glandular mammary tissue was palpable. The external genitalia are shown in figures 1 and 2. The right labium was of considerable size and resembled a scrotum, in which an apparently normal testicle was felt. The left labium appeared smaller. In the left upper labium and inguinal

Fig. 1.—Genital structures: hypospadic penis, and rudimentary vagina between scrotal sacs.

region a similar smaller testicle was palpable. The clitoris had the distinct appearance of a penis 4 cm. long with prepuce, preputial sac and smegma present but no urethral orifice in the glans. The introitus vaginae was 0.75 cm. below the rudimentary penis, flanked by rudimentary labia minora, 1.5 cm. deep and funnel shaped, in the upper portion of which the urethral orifice was found. This structure secreted abundant mucus. On rectal examination a small structure at the neck of the bladder resembling a prostate was palpable, but neither uterus nor adnexa were felt; there was no mass palpable and no uterus or adnexal structures. Physical examination otherwise was negative.

Laboratory examination revealed that the urine, blood count, and chemistry of the blood were normal; the Wassermann reaction was negative. The blood pressure was 108 systolic, 70 diastolic. The sugar tolerance after 100 Gm. of dextrose orally was: fasting 82, one-half hour 192, one hour 177, two hours 170, three hours 81. The metabolic rate was 9 plus. Quantitative titration of the urine for gonadotropic substance revealed an excretion of 333 mouse units per liter by the Zondek alcohol precipitation method.[4] There was no increased excretion of estrogen as judged by a negative Allen Doisy test with 6 cc. of urine.

The x-ray examination (transabdominal pneumoperitoneum) revealed that the pelvis was small and of the male type. There was no radiologic evidence of internal female genitalia.

Psychiatric Examination (by Dr. Jacob Kasanin,[5] November 10).—"The patient was well built, well nourished and middle aged with decidedly masculine features, dark complexion and evidences of a fairly heavy growth on both cheeks, which has been controlled by various depilatory methods and electrolysis. In manner, however, the patient was very feminine, pleasant, gracious, sweet and at times rather coy and somewhat coquettish. She spoke rapidly but clearly. She frequently interrupted her speech by laughter, gesticulated freely, and at times would become quite emotional, and one was given the impression of a somewhat masculine girl or an extremely effeminate man. The voice was rather harsh, but one could not state definitely whether it was masculine or feminine.

"The patient stated that she was born in a small village on a farm, the oldest of five children. Her father kept an apiary and was a fairly prosperous farmer. The mother was kind and sweet and liked the patient very much. Both parents, however, paid very little attention to the children. The patient stated that she was a quiet, sweet, obedient child; she was so good that her mother thought she would become a nun. She played with girls, liked to play with dolls and in every respect was a typical girl. She went to public school, which she completed at the age of 14. At 17 she entered a teacher's seminary. Shortly after this she discovered her physical anomaly and ran away from home. She consulted a specialist, who advised her to wait a few years until it became clearer what her sex was. Meanwhile, the war broke out and the patient entered a hospital as an attendant. She stated that she remained in the hospital several years, until the war was over, and then taught school for three years. For a time she clerked in stores.

"In 1926 the patient came to Chicago and since then has worked as a salesgirl in one of the large department stores.

"The patient stated that at the age of 13 she fell in love with a very good looking boy in her class; he courted her a good deal and brought her cakes and sweets to school and carried her books. The patient was never aware that she was different from other girls until she was 17, when she began to go swimming with other girls. While undressing she had a chance to see other girls and saw that she was different. She became extremely furious with her mother 'because she bore me like that,' so she ran away from home and has never been home since. She changed her name and came, under this assumed

Fig. 2.—Prepared for operation, showing vaginal orifice.

name, to the city. Her parents died without seeing her. She never maintained contact with her family, but she heard about them from time to time through a mutual friend.

"When she was in the hospital during the war, she had many light flirtations with soldiers and officers. They frequently excited her, but she never had intercourse, not because she did not want to but because she was afraid they would discover that she was not like other girls. The patient stated that she 'menstruated' twice in her life. Once when she was 17 she 'found

4. Zondek, Bernhard: Die Hormone des Ovarium und des Hypophysenvorderlappen, Berlin, Julius Springer, 1931.

5. Dr. Kasanin is director of the Department of Psychiatry, Michael Reese Hospital.

her undergarments saturated with blood,' and then again when she was 20. She stated that she had a penis which was about half the size of a man's penis and protruded from the lower part of the abdomen. She stated that it never showed any activity and that no matter how much she was excited sexually she never had an erection. She tried to induce erection in the penis by masturbating and handling it in every possible way, but without success. She had a great deal of erotic feeling under the penis, 'where the water comes from,' and she was so aroused sexually that she could sleep only two or three hours a night. In order to relieve sex tension she masturbated frequently by massaging the region around the urethra.

"Since the patient has come to the city she has been very popular with men, has frequent dates and is widely known in her set. She goes out very often, dances a great deal and goes in for heavy petting with many men but has never allowed herself to have intercourse for fear of being discovered. The patient maintained that the penis and the two little glands in her groin were a nuisance and that she wanted them to be removed so that she could be a perfect woman. At the present time she is engaged to a man ten years older and he wants to marry her as soon as possible. She does not care to have any children, but she would like to have a normal sex life and, most of all, relief from sex tension through normal intercourse.

"The patient is an intelligent person with a masculine physique and appearance but is very feminine in her manner, so that one has the impression of a somewhat masculine girl. She shows an excellent appreciation of her problems, with good judgment, and her whole psychology seems to be entirely feminine, at least from the rather superficial contact with the examiner."

The foregoing examinations left little doubt as to the diagnosis of intersexuality. The presence of testicles implied the diagnosis of masculine pseudohermaphroditism. Since the patient had been brought up to be a woman, very much desired to be a woman and felt very unhappy about her masculine anatomic manifestations, we felt justified in performing a plastic operation to enlarge the rudimentary vagina and remove the penis and testicles. While complete restoration of masculinity in a case of intersex after removal of female organs has been reported,[6] we did not hope a priori for restoration of female sex characteristics, because of the apparent absence of ovaries as determined by palpation and the x-ray appearance of the peritoneum. For that reason we concluded that laparotomy for diagnostic purposes was unjustified. The considerably increased excretion of gonadotropic substance furthermore seemed to indicate gonadal insufficiency and thus to exclude functioning ovaries. In that respect our case resembled the case of Novak,[7] who found testicles intraperitoneally but no ovaries.

Operation (Dr. Rubovits).—Castration and amputation of the penis were easily accomplished by the simple technic employed for these operations. The rudimentary vagina was enlarged by invading the vesicorectal space up to the peritoneum. This area was then packed, with the hope that epithelization would occur. Daily digital and instrumental dilations were partly successful in maintaining a sexually serviceable vagina.

Microscopic Examination (Dr. Otto Saphir).—Sections of the soft globular masses stained with hematoxylin and eosin (fig. 3) revealed partially or completely hyalinized seminiferous tubuli showing no evidence of spermatogenesis. Scattered throughout or massed in the interstitial tissue were hypertrophic Leydig cells. Sections of the coiled peripheral structures revealed epididymis and vas deferens; of the columnar structure connective tissue containing endothelial lined spaces, smooth muscles and nerve fibers and tactile corpuscles, the whole simulating erectile tissue.

The patient made an uneventful recovery. While there were no striking changes in appearance as to masculine features, the breasts became fuller and somewhat enlarged. The patient expressed her gratification and is especially grateful for the marked diminution of libido, which has made it possible for her to discontinue masturbation and resume her normal occupation.

6. Wolf, C.: Ein Fall von Hermaphroditismus verus (lateralis), Endokrinologie **15**: 225-232 (April) 1935.
7. Novak, Emil: Sex Determination, Sex Differentiation and Intersexuality, with Report of Unusual Case, J. A. M. A. **105**: 413 (Aug. 10) 1935.

COMMENT

It appears from the foregoing that we were dealing with a form of intersex which may be classified according to the older nomenclature as pseudohermaphroditism masculinus. Although a laparotomy was not performed and thus the absence of ovaries was not definitely established, this diagnosis would hold true even if some rudimentary ovaries were present, for the presence of both ovaries and testicles in one individual cannot be called true hermaphroditism unless there is definite evidence of gonadal function, such as the presence of both ova and spermatozoa. Our microscopic evidence of testicular tubular atrophy and absence of spermatogenesis is enough to rule out the diagnosis of

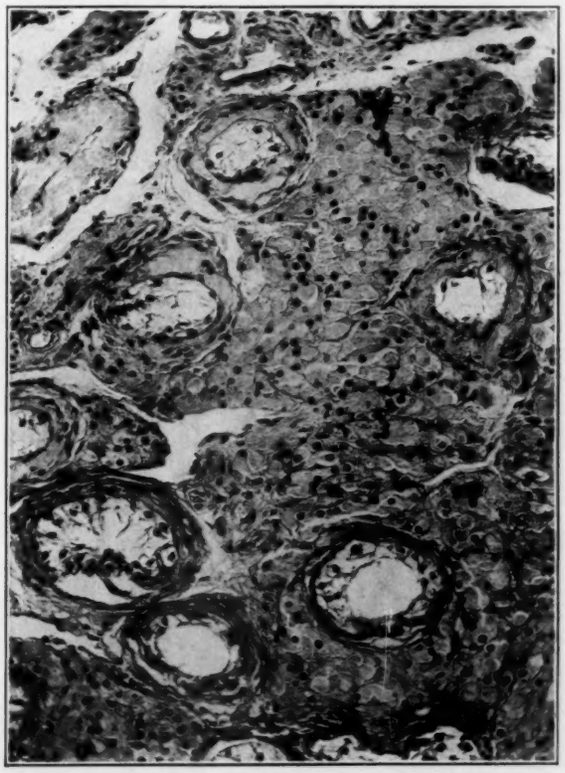

Fig. 3.—Section of testes showing atrophy of seminiferous tubuli and marked interstitial hypertrophy.

true hermaphroditism and to confirm again the fact that true hermaphroditism never has been found in man.

Our case offers several facts of interest. There is the psychosexual aspect. Here is a patient with masculine intersex, brought up to be a woman, suffering from intense libido toward the male sex and masturbation. The question arises whether sexual desire is a manifestation rather of environmental influences than of gonadal function. The fact that sexual tension was relieved by orchidectomy could be evaluated in favor of the assumption that the gonads are responsible for sexual desire even if expressed toward the same sex. The common embryonic origin of ovaries and testes, the near chemical relationship of androgenic and estrogenic substances, which are found excreted by both males and females, and the favorable effects of castration in homosexuality are factors that would interpret libido as a specific manifestation of gonadal activity, no matter

toward which sex they are expressed and no matter as to the environmental influences.

Our case, furthermore, offers interesting features as to the problem of heterosexual manifestations. The marked hypertrichosis and hirsutism, the low voice and flat breasts and the virile pelvis doubtless are secondary sex stigmas due to the presence of male generative organs. Interstitial testicular function, which is considered responsible for the secondary sex characteristics, apparently was not disturbed in our patient in spite of the marked tubular atrophy and absence of spermatogenesis. This, in fact, is not surprising as ligation of the spermatic cord, which will produce testicular tubular atrophy and artificial azoospermia, is known to be followed by an increase of testicular interstitial activity both histologically and physiologically; interstitial hypertrophy, indeed, was very marked in our case, as evidenced histologically. We therefore may rightfully assume that the interstitial testicular function was not disturbed in our case.

How are physicians to consider those mild heterosexual symptoms in women encountered so frequently in everyday practice? There are apparently normal women with normal sex life who have borne several children and yet offer in varying degrees such virile features as hypertrichosis, male distribution of hair, male bony pelvis, flat atrophic breasts and deep voice. No satisfactory explanation can be given at present for that phenomenon. Recently Koch and his associates [8] found that women with hypertrichosis and virilism were excreting considerably more androgenic substance than normal women. Such observations would point to an etiologic relationship between virilism in women and increased androgen production. The source of such production may theoretically be any derivative of the embryonic genital ridge, such as gonads or the adrenal cortex (interrenalism) either in situ or misplaced.[9] It may well be conceivable that the presence of such aberrant or misplaced embryonic testicular tissue in women may give rise to a quantitative imbalance of gonadal hormone production and to the appearance of heterosexual symptoms.

Titration for gonadal factors has not yet been adequately undertaken in such cases. It seems, however, more than a coincidence that those manifestations known in the literature as adrenal virilism, Archard-Thier's syndrome, Cushing's syndrome and arrhenoblastoma ovarii always show involvement of either gonads or the adrenal cortex and always are characterized by marked heterosexual symptoms.

It is to be hoped that further studies of this kind may throw some light on the etiology of heretofore unrecognized mild forms of intersexuality in women.

SUMMARY AND CONCLUSION

1. Intersexuality is the anatomic manifestation of a disturbance in the mechanism responsible for the differentiation of the sex.

2. In a case of "female" intersex in which the patient had two testes and a small hypospadic penis and secondary male sex characteristics, intense libido toward the male sex was relieved by orchidectomy.

3. Otherwise normal women with symptoms of virilism may represent mild forms of intersexuality due to the presence of aberrant or misplaced embryonic testicular tissue with a resulting quantitative imbalance of gonadal hormone production.

25 East Washington Street—104 South Michigan Avenue.

8. Koch, F. C.: Recent Studies on the Excretion of Male Sex Hormones in Man, Ann. Int. Med. **11**: 279 (Aug.) 1937. Koch, F. C.; Gallagher, T. F.; Peterson, D. H.; Dorfman, R. I., and Kenyon, A. T.: The Daily Urinary Excretion of Estrogenic and Androgenic Substances by Normal Men and Women, J. Clin. Investigation **16**: 695-704 (Sept.) 1937. Koch, F. C.; Kenyon, A. T.; Gallagher, T. F.; Peterson, D. H., and Dorfman, R. I.: The Urinary Excretion of Androgenic and Estrogenic Substances in Certain Endocrine States: Studies in Hypogonadism, Gynecomastia, and Virilism, ibid. **16**: 705-718 (Sept.) 1937.

9. Saphir, William, and Parker, M. L.: Adrenal Virilism, J. A. M. A. **107**: 1286 (Oct. 17) 1936.

Clinical Notes, Suggestions and New Instruments

RUPTURE OF THE GALLBLADDER WITHOUT ASSOCIATED CHOLECYSTITIS

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ST. LOUIS

Spontaneous rupture of the gallbladder complicating cholecystitis and cholelithiasis is relatively rare. A review of the literature fails to reveal a reported case of rupture without evidence of inflammation or stones. The diagnosis of this abdominal catastrophe is difficult because of the diversity of clinical symptoms, the lack of localization in the physical manifestations and the rarity of such a pathologic process.

The following report outlines the clinical and pathologic features of such a case:

REPORT OF CASE

A white man aged 58, an executive, seen March 23, 1937, complained at this time of failing vision, of four weeks' duration, and of nocturia (from two to three times). His past history

Fig. 1.—Gross specimen showing undersurface of liver, with ruptured gallbladder and large hematoma.

was of interest in that he had had a duodenal ulcer for a number of years, was operated on for adhesions in 1927, and had a gastroenterostomy in 1929 for a pyloric obstruction. He had been entirely relieved of his gastrointestinal symptoms following this operation. Aside from typhoid and diphtheria in his youth, the past history was not notable. His father and mother had both died at the age of 82 and there was no other history of cardiorenal disease in his family.

Physical examination showed a marked general and retinal arteriosclerosis with recent retinal hemorrhages. The heart was moderately enlarged to the right and left and the blood pressure was 212 systolic, 128 diastolic. An electrocardiogram showed a PR interval of 0.14 second with definite Q waves in

the chest lead and the T waves markedly inverted in lead 1, upright in leads 2 and 3 and inverted in the chest lead.

Laboratory examination at this time revealed white blood cells 6,000, red blood cells 4,000,000, hemoglobin 85 per cent, a blood smear slight anisocytosis and 12 per cent stab cells, nonprotein nitrogen 40 mg., blood sugar 111 mg. per hundred

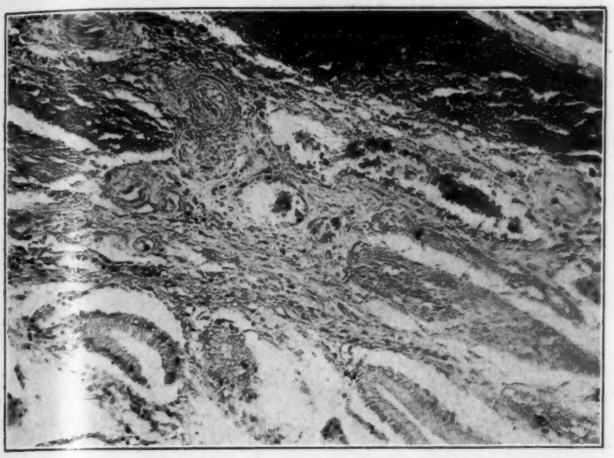

Fig. 2. Section from wall of gallbladder at margin of necrotic area showing extensive hemorrhage and great thickening of medial coats of several arterioles with almost complete obliteration of the lumen. Reduced from a photomicrograph with a magnification of 200 diameters.

cubic centimeters, Kline reaction negative, intravenous phenolsulfonphthalein 10 per cent in thirty minutes, the specific gravity by the Addis concentration test 1.014 at 7 a. m., 1.018 at 8 and 1.018 at 9, and a heavy precipitate of albumin in the urine, with no sugar, an occasional red blood cell and white blood cell and fine granular casts.

A diagnosis of hypertensive cardiovascular-renal disease was made, and the patient was put on a modified rest regimen with sedatives. His blood pressure during the next two months varied from 176/90 to 240/140.

September 17 the patient was hospitalized because of an increased blurring of vision, headaches, nocturnal dyspnea and attacks of syncope. At this time he showed a marked pitting edema of the lower extremities, moderate cyanosis and moist crepitant rales in both bases. The blood pressure on admission was 232/124. Laboratory tests at this time were not notable except for the nonprotein nitrogen, which was 54 mg. He remained in the hospital for eight days at this time, and on rest and digitalis the edema partially subsided but the other symptoms were unchanged.

He returned to his home and continued to be mildly decompensated, somewhat mentally confused and orthopneic. October 11 at 11 a. m., while having an elimination, he was seized with excruciating pain in the right upper quadrant associated with a small coffee ground vomitus. He was returned to the hospital in shock. On admission his blood pressure was 268/100, temperature 97.2 F., and respiratory rate 24. A very tender abdominal mass was palpable 6 cm. below the right costal margin but there was no abdominal rigidity. The blood count on admission showed white blood cells 6,200, of which 8 per cent were stab cells, 74 per cent segmented cells, 17 per cent lymphocytes and 1 per cent monocytes; red blood cells 3,560,000, with 67 per cent hemoglobin. Repeated white and red blood counts at intervals of two hours revealed no appreciable change from the original count. A tentative diagnosis of mesenteric thrombosis was made and the patient was given morphine and supportive treatment. The pain in the right upper quadrant remained so severe that it was difficult to keep him in bed. The mental confusion increased and partial restraint was necessary. His blood pressure varied from 268/100 to 175/85 and there was a progressive cardiac failure. He died forty-eight hours after admission to the hospital.

SUMMARY OF THE POSTMORTEM EXAMINATION (BY DR. L. S. N. WALSH)

Gross.—There was a large hematoma, which lay on the dorsal aspect of the liver. It originated in an opening in the gallbladder wall which was about 1.5 cm. in diameter. The liver otherwise appeared normal.

The gallbladder was large, distended, purplish red and soft. The cystic duct contained blood.

Microscopic.—The liver appeared normal except that the periportal spaces were infiltrated by lymphocytes.

The pancreas appeared normal but the vessels in and around it presented advanced sclerotic changes, often with great thickening and hyalinization of the walls, which occluded them almost completely. This process was seen in small arterioles and seemed to involve both the media and the intima. A large vein appeared at several levels in which there was an organized and recanalized thrombus.

Sections from the gallbladder wall at some levels showed active vascular engorgement and hemorrhage into the tissue. Both well preserved and disintegrating erythrocytes with free pigment were seen. The filamentous processes of the mucosa at such levels were present and appeared normal except that they were forced widely apart. In the gallbladder wall small arterioles were encountered with greatly thickened and hyalinized walls, also arterioles with proliferation of the intimal coat practically occluding the vessel. The gallbladder wall near the site of rupture was loaded with extravasated blood and polymorphonuclear leukocytes. The mucous membrane had disappeared and many of the cells in the wall itself were necrotic.

The anatomic diagnoses were:

1. Hyperplastic arteriolar sclerosis involving the vessels of the pancreas, spleen, liver and kidneys with infarction, rupture and fatal hemorrhage from the gallbladder wall.
2. Arteriosclerosis, general.
3. Organized thrombophlebitis of the pancreatic vein.
4. Hypertrophy of the left ventricle.
5. Chronic diffuse nephritis (small, red, granular, arteriosclerotic kidneys).
6. Hydropericardium.
7. Hemorrhagic erosions of the stomach.
8. Emaciation.
9. Appendectomy.
10. Gastroenterostomy.

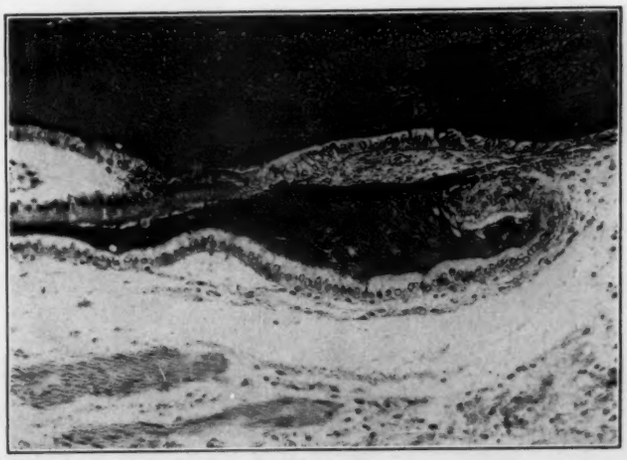

Fig. 3.—Section of wall of gallbladder showing distention by hemorrhage with flattening and stretching of otherwise intact mucosa. Reduced from a photomicrograph with a magnification of 200 diameters.

11. Chronic visceral peritonitis, right upper quadrant.
12. Chronic periportal hepatitis.
13. Adenoma of the kidneys.
14. Chronic fibrous pleurisy.

COMMENT

A case of spontaneous rupture of the gallbladder occurred without associated cholecystitis. Although a pathologic rarity, this condition should be considered when making the differential diagnosis of an intra-abdominal catastrophe.

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TWO-PLANE DIRECTION AND RANGE FINDER FOR NAILING FRACTURES OF THE NECK OF THE FEMUR

GILSON COLBY ENGEL, M.D., AND HANS MAY, M.D.
PHILADELPHIA

Because of the extreme difficulty in getting the Kirschner wire in proper position to feed the Smith-Petersen nail on it, in nailing fractures of the neck of the femur and in determining the length of the femoral neck, our interest was stimulated to find a better method than that used today. It has been, and still is, easy to get the position of the fragments and the wire in good alinement in the one plane, anterior posterior, but the difficulty has been in getting these alinements in the

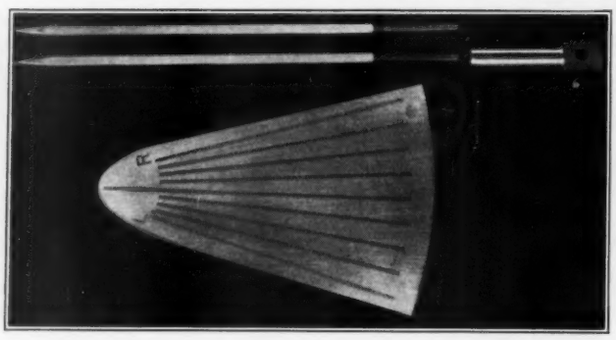

Fig. 1.—The instrument, its two fixing pins and the cap that screws on the ends of the fixing pins. The lines that converge toward the apex are opaque to x-rays, the rest of the plate only faintly so.

second plane, lateral, as well as the first. With the direction finder we feel that these difficulties are entirely eliminated, and besides being able to get perfect position regarding fragments, wire and nail, and the proper length of nail, it can be done through a small incision, which also is of advantage in elderly patients by making it possible for the patients to start motion at once and to get them out of bed early.

Since our presentation of the first model,[1] further experimentation has brought the developmental stage of this instrument

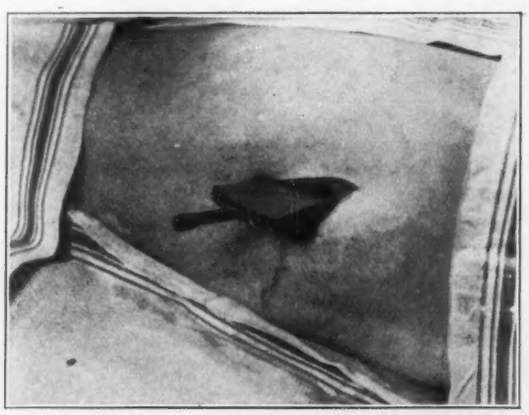

Fig. 3.—The instrument held into the femur by its fixing pin, with the cap screwed snugly on the pin to hold the plate in place.

to the greatest point of simplicity and accuracy. The instrument we are presenting is the final outcome of experimentation and in this form has been given to the manufacturer for production. It can be used as a direction and rangefinder if the Smith-Petersen nail, the Henderson lag screw or the Moore nails are used for internal fixation of intracapsular fractures of the neck of the femur.

From the Lankenau Hospital, Philadelphia, service of Dr. George P. Müller.

Owing to lack of space, this article has been abbreviated in THE JOURNAL by the omission of some of the illustrations. The complete article appears in the authors' reprints.

1. Engel, G. C., and May, Hans: Surg., Gynec. & Obst. **66**: 495 (Feb.) 1938.

DESCRIPTION OF INSTRUMENT

This instrument is composed of one plate instead of the two plates as originally described. This plate is a pie-shaped sector made of aluminum, which is faintly opaque to x-rays

Fig. 5.—Anterior posterior x-ray view showing the original fixing pin through the center line holding the plate in position, and the second pin inserted through the selected converging line, which passes through the center in the long axis of the neck of the femur.

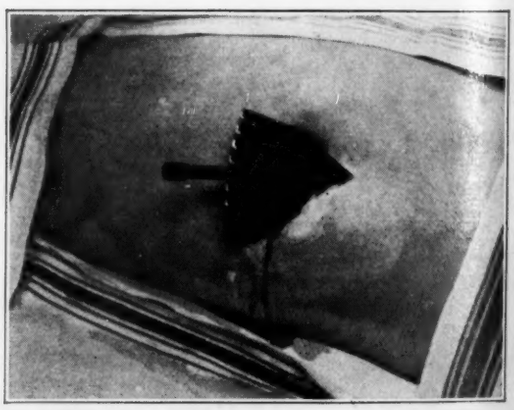

Fig. 6.—This view shows the direction finder having been slipped off the square pin and refed on it at right angles to the original position. It is held by the cap screwed on the pin. The original fixing pin, of course, has been removed.

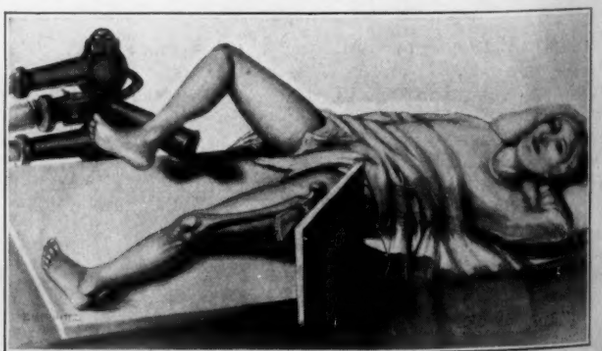

Fig. 7.—Method of taking the lateral x-ray plate. Note that the direction finder and the x-ray film are held parallel to each other, while the cone of the x-ray tube is perpendicular to these two plates.

(fig. 1). On this sector are converging lines of a metal which is densely opaque to x-rays, converging at the apex of the sector. Underlying each of these lines are two square canals, one canal being just under the other (fig. 2). In these canals

will fit square steel pins constructed with a tapering sharp point at one end and a screw thread tapped on the other. There is a cap which screws on the end of the pins. The purpose of this cap is, first, to take the blow of the hammer when the pin is driven into the cortex; secondly, to hold the plate snugly against the femur, and, thirdly, to withdraw the pin from the cortex of the femur by screwing up on the cap. All these canals take a 3/32-gage Kirschner wire.

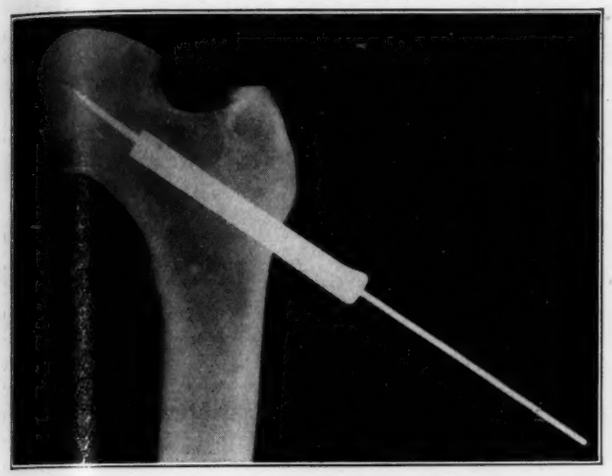

Fig. 11.—Anterior posterior view of the Smith-Petersen nail partially driven in on the Kirschner wire as a guide.

USE OF INSTRUMENT

The patient is anesthetized with spinal anesthesia and the fracture reduced by the Leadbetter maneuver. The leg is held by an assistant in abduction and about 10 degrees internal rotation. The skin over the affected thigh is prepared and an incision made from the great trochanter about 2 inches (5 cm.) in length, paralleling the shaft of the femur. This incision is carried down through the periosteum to the bone. The two-plane direction finder is then inserted into the incision so that the apex bisects the angle formed by the great trochanter and the shaft of the femur. The square pin is inserted into the center hole of the lower row of canals, the cap being partially screwed on, and is driven into the cortex of the bone. The plane of the direction finder is parallel to the long axis of the femur (fig. 3).

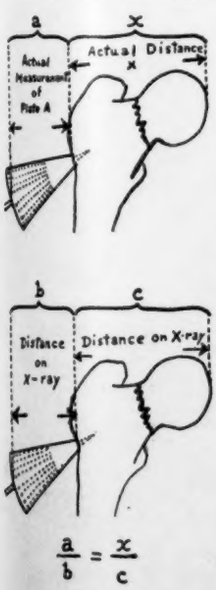

Fig. 13.—The method used to deduce the actual length of the femoral neck.

An anterior posterior roentgenogram is then taken and the converging line in the x-ray plate which is in the direction of the long axis of the neck of the femur is selected (fig. 4). Through the corresponding tube is inserted a second square pin in the opposite row of holes to which the first pin was inserted (fig. 5). The first pin is then removed by setting up on the thumbscrew cap, leaving only the second pin and the direction finder in position. The direction finder is then slid off of the second inserted pin, turned at right angles and inserted over the pin again, the pin passing through the center line of the upper row of canals. The screwcap is screwed snugly on this pin just to keep the plate in position (fig. 6).

A lateral x-ray view is then taken by pointing the cone of the x-ray tube under the unaffected leg, the thigh of this leg being flexed on the trunk, so that the cone of the x-ray tube is perpendicular to the plane of the direction finder and perpendicular to the x-ray plate, which is held parallel to the plane of the direction finder and just above it (fig. 7). From this lateral view we again select the converging line, which is in the long axis of the neck of the femur in this view. Through its corresponding tube in the opposite row of holes to that in which the pin is fitted is inserted a Kirschner wire. This wire has previously been marked with a wire cutter (see deduction of measurements) so that when the mark on the wire reaches the outer edge of the direction finder we know that the point of the wire is just to the head (fig. 8). After the wire is in, the direction finder and its pin are both withdrawn (fig. 9). The Smith-Petersen nail is fitted over the wire and driven in with a nail impacter (figs. 10, 11 and 12). When it is home, the Kirschner wire is withdrawn and the fragments are impacted with the bone impacter. A few skin sutures are put in place and a small dressing is applied.

DEDUCTION OF MEASUREMENTS

Knowing the actual length of the direction finder, which is 9 cm., we find the actual length of the neck of the femur by a simple ratio. The actual length of the direction finder is to the length of the direction finder as measured on the anterior posterior x-ray plate as x (the actual length of the neck of the femur) is to the measured length of the neck of the femur in the x-ray plate. Thus we get the actual length of the neck of the femur (fig. 13). By adding the actual length of the neck of the femur to the actual length of the direction finder, we get the length, which we mark on the Kirschner wire. The actual length of the neck of the femur minus one-half inch, allowing for impaction of fragments, gives us the length of the nail to be used.

The operation is simple, accurate and nonshocking, making it possible to start motion at once; the patient is up in a wheelchair within forty-eight hours and on crutches within ten days to two weeks, depending on his physical strength.

1914 Pine Street—Spruce Medical Building.

RASMUSSEN ANEURYSM: ITS ROENTGEN APPEARANCE

REPORT OF CASE WITH NECROPSY

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AND
MILTON MALEV, M.D., NEW YORK
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The existence of aneurysms of branches of the pulmonary artery in tuberculous cavities has been known for many years. In fact, they have long been recognized among the more common causes of massive and fatal hemoptysis in phthisis.

About 100 years ago, Fearn [1] gave what appears to be the first description of such an aneurysm. He reported the case of a man aged 41, "of spare and strumous habit," who suffered from a chronic cough, followed by fatal pulmonary hemorrhage. Postmortem examination revealed numerous cavities in both lungs and "in the upper left lobe there was an evacuated cavity, two inches in diameter and into it was seen jutting distinctly an aneurysmal sac as large as a nutmeg, which had burst by a cleftlike opening. The parietes of the sac were thin, and it did not contain any fibrinous layers. A vessel the size of a small crow-quill, leading from a considerable trunk of the pulmonary artery, was distinctly traceable into the sac."

A similar case was reported by Cotton [2] in 1861. His patient died after repeated hemoptyses, and an autopsy disclosed a cavity which contained an aneurysm as large as a walnut arising from "an artery about the size of a crow-quill running along its wall."

In 1868 Rasmussen [3] reported a series of such aneurysms with a discussion of their pathologic appearance. These aneurysms have since been known by his name.

From the Tuberculosis Service of the Riverside Hospital, Dr. Max Taschman, director.

1. Fearn, S. W.: Aneurysm of the Pulmonary Artery: Report of Case, Lancet **35**: 679, 1840.
2. Cotton, R. P.: Phthisis: Fatal Hemorrhage from an Aneurysm of a Small Branch of the Pulmonary Artery, M. Times & Gaz. **2**: 240, 1861.
3. Rasmussen, F. W.: Hemoptysis Especially when Fatal in Its Anatomical and Clinical Aspects, Edinburgh M. J. **4**: 385, 1868.

PATHOGENESIS OF RASMUSSEN ANEURYSM

The formation of these aneurysms has been variously explained. Rasmussen accepted Rokitansky's theory that they resulted from the absence of support on one side of the vessel following the destruction of the adjacent lung tissue. Furthermore, he maintained that the tendency for the vessel to expand toward the unsupported side was materially hastened by the increased intra-arterial pressure as a consequence of the destruction of the neighboring blood vessels by the tuberculous process.

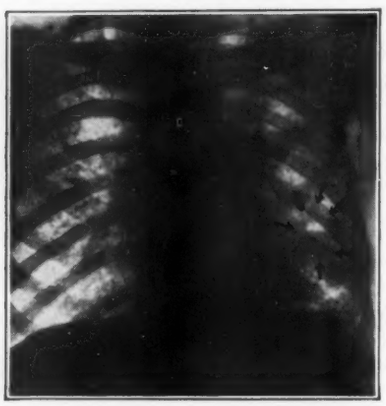

Fig. 1.—Advanced bilateral tuberculosis. The cavity in the left lower part of the chest contains a dense irregular mass.

Aneurysms in young and rapidly growing cavities are, according to Jaffe,[4] the result of disparity in the rate of occlusion of the vessel on the one hand and the rate of the progressing caseation on the other. He maintains that the vessel wall is weakened by the advancing caseous process at a time when it still has to carry the full load of blood pressure. Adventitia, media and finally internal elastic membrane are destroyed by caseation necrosis, while the intima is slightly thickened. The necrotic portion of the wall is autolyzed by the pus in the cavity, and the thin remaining membrane is stretched and transformed into an aneurysmal sac.

FATE OF RASMUSSEN ANEURYSM

Unless death from rapidly progressive tuberculosis or its complications supervenes early, such aneurysms usually rupture at their apical aspect as a result of pressure against their weakened walls. Less commonly the rent occurs at their narrow stalk probably because of continuous pulsation and the weight of their contents. Rarely they "heal" by filling the entire cavity in which they are located. In such cases rupture is prevented by the support afforded by the walls of the cavity. In one of our cases the aneurysm turned into a solid mass of laminated clot and appeared to be in no way connected with the fatal issue.

While numerous reports and discussions of the Rasmussen aneurysms have appeared in the literature, little of value has been offered regarding their antemortem detection. It is our purpose in this communication to present a case, with postmortem examination, in which the cavity and its enclosed aneurysm are clearly visible on the roentgenogram of the chest.

REPORT OF CASE

J. R., an American Negro laborer, aged 35, was admitted to the Riverside Hospital May 21, 1937. His family history and his previous history were irrelevant, except that he had an attack of pneumonia in the spring of 1935 and pleurisy in May 1936, from which he had apparently made a complete recovery. He began to cough and expectorate in January 1937 and soon experienced night sweats. He had a hemoptysis of about 100 cc. in April and it was because of progressive weakness that he sought admission to the hospital the next month.

On physical examination the patient was well nourished and well developed and showed no evidence of respiratory distress. There were dulness, bronchovesicular breathing over the upper half of the left lung and medium sized moist rales over the entire left side of the chest. His heart appeared to be normal. The blood pressure was 130 systolic and 82 diastolic. The urine was normal and the Kahn reaction of the blood was negative. The sputum was positive for tubercle bacilli (Gaffky VI).

Chest films (fig. 1) showed an advanced bilateral infiltration. In the lower portion of the left lung was a cavity about 4 cm. in diameter, at the lower aspect of which was seen a dense irregular shadow, which, because of the recent hemoptysis, was thought to be due to a blood clot. The patient was kept at absolute rest. His general condition remained unchanged for two months. The temperature ranged between 99 and 100.6 F. The cough continued and the sputum amounted to about 100 cc. a day. He had a massive hemoptysis July 22, and the temperature rose to 104 F. Auscultation several days later showed moist rales throughout both lungs. Thereafter the patient's course was progressively downhill. His temperature fluctuated between 100 F. and 104 F. His cough became more and more violent and the sputum heavily streaked with blood. Several times the patient had small frank hemoptyses. He grew weaker and increasingly more dyspneic and died September 19, four months after his admission to the hospital.

AUTOPSY

Autopsy showed an extensive pulmonary tuberculosis, with cavitation at both apexes. The air passages were free of blood. In the upper portion of the left lobe (fig. 2) about 4 cm. below the interlobar fissure and about 3 cm. in from the lateral margin of the lung there was a fairly fresh thin-walled cavity, with shaggy walls, containing a small amount of blood-stained débris. This cavity was two thirds filled by an intact, soft and apparently empty spherical gray mass which arose by a narrow stalk from the inner lower angle of the cavity. This stalk was ruptured on one side and could be easily traced through a small branch to a large trunk of the pulmonary artery. When the aneurysm was opened by an incision below its apex, it was seen to be empty above and to contain a loose blood clot below. The patient's repeated hemorrhages had apparently arisen from the small rent in the stalk, which had alternately closed and opened with the retraction of the blood clot.

COMMENT

Shadows of increased density within cavities have almost invariably been considered as due to unexpelled blood clots following hemotyses. No doubt this is true in the vast majority of cases, but in view of our observation it is well to bear in mind that such shadows may be due to aneurysmal dilatations of branches of the pulmonary artery. It seems reasonable to believe that a differential diagnosis between an aneurysmal dilatation and a blood clot within a cavity may be made roentgenographically. Dense shadows within cavities, if due to blood clots, will change in size, shape, contour and position and will disappear under observation. Shadows due to aneurysmal dilatations are more persistent and will not change rapidly in contour, size, shape and position, nor will they disappear on serial roentgenography.

Fig. 2.—Aneurysm within cavity in the left lower lobe.

The practical importance of recognizing these aneurysms is quite obvious. Experience has taught that it is best to collapse a bleeding tuberculous lung after the hemoptysis and blood spitting have ceased. In this way blood is not entrapped in the parenchyma and small bronchi, and a stormy course is avoided after the induction of pneumothorax. If this conservative procedure is followed in cases in which hemoptysis occurs because of a bleeding Rasmussen aneurysm, extensive bronchogenic spread or even exsanguination may occur. In

4. Jaffe, R. H.: Pathology of Pulmonary Tuberculosis, in Goldberg's Clinical Tuberculosis, Philadelphia, F. A. Davis Company, 1935, p. 139.

such cases it would seem that the best interests of the patients would be served by early collapse in spite of the active hemoptysis and questionable condition of the opposite lung.

If the possibility of their existence and their roentgen appearance are kept in mind, Rasmussen aneurysms should be recognized more often before death than heretofore. The condition must be treated in the light of the fact that unless compressed effectively into the cavity in which the aneurysm rests, large and often fatal hemoptysis is the almost inevitable result.

25 Central Park West.

Special Article

VITAMIN E

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IOWA CITY

This article and others recently published or to be published comprise a new series on the present status of our knowledge of the vitamins. They have been prepared under the general auspices of the Council on Pharmacy and Chemistry and the Council on Foods. The opinions expressed are those of the authors and not necessarily the opinions of either council. Reprints are not available but the articles will be published later in book form.—ED.

Some fifteen years ago several investigators in animal nutrition began to suspect that for normal reproduction the rat required a dietary constituent not yet recognized or included within the generally accepted group of accessories. At first there was some hesitation in accepting yet another member into the already large family of vitamins, but convincing evidence from various laboratories, especially from that of Evans and his co-workers, soon established the fact that when reared on diets otherwise complete, but not containing this new fat-soluble factor, rats did not have offspring, although they appeared to be quite normal in other respects. Male animals became infertile through degeneration of the germinal epithelium and the damage was irreparable. Females failed to carry their young to term; the embryos died and were absorbed, but the female reproductive mechanism as such was not damaged, since adequate dosages of the missing factor restored fertility. Still other experiments showed that diets in which this factor, although originally present, had been destroyed by oxidation were likewise inadequate for reproduction.

Thus vitamin E came into its own. In the five years that has elapsed since the publication of the previous symposium on vitamins in THE JOURNAL, our knowledge of vitamin E has been advanced considerably. It has been shown that at least three substances possess the effect of vitamin E, and their chemical nature is beginning to be understood. The need for vitamin E in other species, especially in domestic animals, its rôle in reproduction and possibly in other physiologic processes, its possible therapeutic value in preventing habitual abortion—these and other aspects have received active attention. Only the more significant papers can be discussed here; a summary of the earlier work and a bibliography prior to 1932 will be found in the previous review.[1]

CHEMISTRY

A suitable starting point for a chronological presentation of the chemical status of vitamin E is its association with antioxidants in nature. The antioxidants here concerned are substances which delay or prevent the auto-oxidation of fats and the rancidity resulting therefrom. The probable presence of these oxidation-inhibiting agents in certain vegetable oils, notably in wheat germ oil, which is rich in vitamin E, was deduced from the protection which this oil afforded against rancidity in certain experimental rations which were particularly susceptible to this form of oxidation. An actual association of antioxidant and vitamin E was first demonstrated in lettuce oil [2] and later in tomato and in wheat germ oil;[3] subsequently other vegetable sources were also found to contain both.

The ready susceptibility of vitamin E to oxidative destruction under favorable conditions is the basis of the common practice to include cod liver oil, butter fat or lard, sometimes in incipient rancidity, in experimental rations designed to be deficient in E; there are many illustrations [4] of the disappearance of vitamin E in the presence of these fats. Treatment of the food with ferric chloride [5] has been employed for the same purpose, the explanation being that oxidation destroyed vitamin E or the protecting antioxidants, or both.

In order to examine the relations between vitamin E and antioxidants more carefully, Olcott and Mattill [6] prepared a concentrate of vitamin E from wheat germ oil, which was found to have antioxygenic action as well as the biologic activity of vitamin E. This concentrate proved to be similar to the one first made by Evans and Burr some years ago and described in their monumental memoir on vitamin E. It differed in one respect from theirs: acetylation did not destroy the biologic activity although antioxygenic action was abolished. Hydrogenation was again found not to destroy the biologic activity (nor did it abolish the antioxygenic action) but the hydrogenation was incomplete even under very drastic treatment, as had been found by others.[7] The destructive action of chlorine and bromine was reversible; boiling with zinc and hydrochloric acid in methanol restored biologic activity. Mild oxidation with silver nitrate seemed to reduce but not destroy vitamin E activity, but treatment with more vigorous oxidants such as potassium permanganate, ozone and perbenzoic acid did so.[8]

Of greatest chemical interest was the biologic activity of acetylated or benzoylated concentrates; the formation of such derivatives from vitamin E would signify the presence of one or more hydroxyl groups. The antioxygenic action, which in these substances probably depends on a hydroxyl group,[9] was destroyed by such

1. Evans, H. M.: Vitamin E, J. A. M. A. **99:** 469 (Aug. 6) 1932.

2. Olcott, H. S., and Mattill, H. A.: The Unsaponifiable Lipids of Lettuce: III. Antioxidant, J. Biol. Chem. **93:** 65 (Sept.) 1931.

3. Bradway, Elizabeth M., and Mattill, H. A.: The Association of Fat-Soluble Vitamins and Antioxidants in Some Plant Tissues, J. Am. Chem. Soc. **56:** 2405 (Nov.) 1934.

4. Macomber, Donald: Studies of Reproduction of the Rat: III. Vitamin E Neutralized When Mixed with Lard, New England J. Med. **209:** 1235 (Dec. 14) 1933. Ringsted, Axel: Histological Investigations on the Causes of Sterility in Albino Rats Kept on a Normal Butter Diet, Acta path. et microbiol. Scandinav. **11:** 197 (No. 2) 1934; through Biol. Abstr. **9:** 11407 (No. 6) 1935. Lassen, H. K.: The Influence of Butter Fat and Peanut Oil on the Growth and Fertility of Rats, Acta path. et microbiol. Scandinav. **11:** 183 (No. 2) 1934.

5. This was first suggested by Waddell and Steenbock and has been employed in some of the experiments to be reviewed here. According to M. W. Taylor and V. E. Nelson (Some Observations on Ferric Chloride Addition to the Diet, Proc. Soc. Exper. Biol. & Med. **27:** 764 [May] 1930), both the nature of the diet and the manner of applying the ferric chloride determine the result. The procedure destroys vitamin E, but the partial destruction of vitamin A, or of other unknown essentials, and the possible toxicity of the salt itself are all variables that often make the interpretation of results difficult.

6. Olcott, H. S., and Mattill, H. A.: Vitamin E.: I. Some Chemical and Physiological Properties, J. Biol. Chem. **104:** 423 (Feb.) 1934.

7. Bowden, F. P., and Moore, Thomas: Absorption Spectrum of the Vitamin E Fraction of Wheat-Germ Oil, Nature **132:** 204 (Aug. 5) 1933.

8. Olcott, H. S.: Vitamin E: II. Stability of Concentrates Toward Oxidizing and Reducing Agents, J. Biol. Chem. **107:** 471 (Nov.) 1934.

9. Olcott, H. S., and Mattill, H. A.: Antioxidants and the Oxidation of Fats: I. Inhibitols, J. Am. Chem. Soc. **58:** 1627 (Sept.) 1936.

esterification; biologic activity was not; hence, if vitamin E possessed a hydroxyl group, either it was resistant to esterification or the ester was physiologically utilizable. By an interesting series of reactions Olcott[10] demonstrated that vitamin E does contain a hydroxyl group which is easily esterified and whose esters with acetic or benzoic acid are utilizable (hydrolyzable) by the animal body while a compound formed with phenyl isocyanate, for example, is not.

The presence of a hydroxyl group that could be acetylated was also demonstrated by Drummond and his co-workers[11] in comprehensive studies of the unsaponifiable fraction of wheat germ oil and of a very potent concentrate obtained from it. Only one of two oxygen atoms present could be acetylated, the other being inert, and the acetylated product was still active biologically. Reactions with iodine or hydrogen suggested the presence of three double bonds, but the concentrate resisted complete hydrogenation. Spectroscopic evidence, which is to be discussed, indicated that the hydroxyl group might be derived from a keto-enol structure but this view had to be abandoned later.[12] Data on surface pressures and surface potentials secured by Askew[13] suggested a reduced polycyclic structure of the sterol type.

A study of the curves or bands in the absorption spectrum of the ultraviolet region is an increasingly useful tool for elucidating organic structure. This method was first applied to crude concentrates of vitamin E by Morton and Bowden and their co-workers.[14] In the biologically active portion of much purer concentrates prepared from cottonseed as well as from wheat germ and palm oils Olcott[15] found a band with a maximum at 2,940 angstrom units; this was later confirmed.[16] His opinion that this band was not the property of the vitamin molecule but of some closely related impurity removable with difficulty, perhaps antioxidant,[9] was based on the lack of parallelism between the intensity of this band and the vitamin E content as determined biologically. Some effective concentrates showed no band; others, notably from palm oil, produced an intense band but had low biologic activity. Furthermore, various reagents caused the band to migrate without seeming to affect the vitamin. Despite further careful work on this question, Drummond and his co-workers[17] were compelled to leave it open.

Crystalline structure is usually considered a criterion of purity. All investigations thus far mentioned suffered from lack of purity of the starting material. This was a mixture; all the commonly used methods for isolating a substance in pure form had been unavailing. These included the use of varied solvents, high vacuum distillation which was often destructive, chromatographic absorption which Drummond found somewhat useful, and the preparation of crystallizable derivatives. Successful application of the last method on a microchemical scale with cyanic acid to combine with the hydroxyl group finally enabled Evans and the Emersons[18] to isolate three different crystalline allophanates from a vitamin E concentrate of wheat germ oil.[19] When the alcohols were regenerated from them, one proved to be inactive biologically, another, later called β-tocopherol, had some activity, and the third, which they called α-tocopherol, was effective in doses of from 1 to 3 mg. It was a light yellow viscous oil which resisted all attempts at crystallization, but its conversion to another crystalline derivative (with ρ-nitrophenyl isocyanate), followed by reconversion to the allophanate and regeneration of the alcohol, left its biologic activity unimpaired. The peak of its absorption band was at 2,980 angstrom units, and micro-analysis indicated a provisional formula, $C_{29}H_{50}O_2$. Olcott, and especially Drummond, had been able to prepare concentrates having equal or even greater biologic activity than α-tocopherol. Is a mixture more effective than any of its separate constituents and what is pure vitamin E? Evans and his co-workers expressed the opinion that probably several closely related substances possess the biologic activity of vitamin E in varying degree. Soon thereafter they isolated the same α-tocopherol from cottonseed oil[20] and later[21] still another active substance, γ-tocopherol, from the same source. Further intensive investigations revealed that only α-tocopherol is present in lettuce and that palm oil is qualitatively similar to cottonseed oil and like it contains no β-tocopherol. These substances have unequal biologic activity, the α being more effective than β- or γ-components. They also proved to be antioxygenic[22] and hence possibly phenolic in nature, but the antioxygenic action did not parallel biologic activity, the γ being the most effective inhibitor. The confusion that has existed between the observations of different investigators is thus largely resolved, and the ultimate consequences of this resolution will be important. One may now speak of the multiple nature of vitamin E in much the same sense as we accept the fact that there are several substances which have vitamin D activity.

When the microtechnic of Emerson is applied on a larger (even if costly) scale,[22a] sufficient material will become available for more comprehensive study of the vitamin E molecule(s). Indeed, some progress in this direction has already been made. By thermal decomposition of α-tocopherol Fernholz[23] produced a crystalline

10. Olcott, H. S.: Vitamin E: III. Evidence for the Presence of a Hydroxyl, Group; The Biological Utilization of Esters; Absorption Spectrum, J. Biol. Chem. **110**: 695 (Aug.) 1935.

11. Drummond, J. C.; Singer, Eleanor, and MacWalter, R. J.: A Study of the Unsaponifiable Fraction of Wheat Germ Oil with Special Reference to Vitamin E, Biochem. J. **29**: 456, 1935.

12. Drummond, J. C.; Singer, Eleanor, and MacWalter, R. J.: Further Observations on the Constituents of the Unsaponifiable Fraction of Wheat Germ Oil with Particular Reference to Vitamin E, Biochem. J. **29**: 2510, 1935.

13. Askew, Frederic: Surface Films of Vitamin E Concentrates, Biochem. J. **29**: 472, 1935.

14. Bowden, Philip, and Moore, Thomas: Absorption Spectrum of the Vitamin E Fraction of Wheat-Germ Oil, Nature **131**: 512 (April 8) 1933. Morton, R. A., and Edisbury, J. R.: Absorption Spectrum of Unsaponifiable Matter from Wheat-Germ Oil, ibid. **131**: 618 (April 29) 1933. Bowden and Moore.[7]

15. Olcott, footnotes 8 and 10.

16. Martin, A. J. P.; Moore, Thomas; Schmidt, Marion, and Bowden, F. P.: Absorption Spectrum of Vitamin E, Nature **134**: 214 (Aug. 11) 1934.

17. Drummond, Singer and MacWalter, footnotes 11 and 12.

18. Evans, H. M.; Emerson, O. H., and Emerson, Gladys A.: The Isolation from Wheat Germ Oil of an Alcohol, α-Tocopherol, Having the Properties of Vitamin E, J. Biol. Chem. **113**: 319 (Feb.) 1936.

19. This is the first record of the successful production of crystalline derivatives except for the preliminary note of Kimm (Kimm, Riang-Ha: Crystalline Derivatives of Vitamin E: Preliminary Report, Sc. Papers Inst. Phys. Chem. Research [Tokyo] **28**: 74, 1935), who from a concentrate of rice embryo oil obtained crystals of several β-naphthoic esters of vitamin E which gave modified sterol color reactions; the regenerated vitamin E had the empirical formula $C_{29}H_{48}O$ and was surprisingly potent biologically. Further important details are lacking and attempts to confirm his results have been unsuccessful (Todd, A. R.; Bergel, F.; Waldman, H., and Work, T. S.: Chemical Studies on Vitamin E: I. The Isolation of Some Crystalline Alcohols from the Unsaponifiable Matter of Rice and Wheat Germ Oils, Biochem. J. **31**: 2247 [Dec.] 1937).

20. Emerson, O. H.; Emerson, Gladys A., and Evans, H. M.: Isolation from Cottonseed Oil of Alcohol Resembling Alpha Tocopherol from Wheat Germ Oil, Science **83**: 421 (May 1) 1936.

21. Emerson, O. H.; Emerson, Gladys A.; Mohammad, A., and Evans, H. M.: The Chemistry of Vitamin E, J. Biol. Chem. **122**: 99 (Dec.) 1937.

22. Olcott, H. S., and Emerson, O. H.: Antioxidants and the Autoxidation of Fats: IX. The Antioxidant Properties of the Tocopherols, J. Am. Chem. Soc. **59**: 1008 (June) 1937.

22a. According to Drummond (Drummond, J. C., and Hoover, A. A.: Studies on Vitamin E [Tocopherol], Biochem. J. **31**: 1852 [Oct.] 1937) the allophanate method is not very practicable because of high losses. Neither he nor Todd and his associates (Todd, A. R.; Bergel, F., and Work, T. S.: Studies on Vitamin E: II. The Isolation of β-Tocopherol from Wheat Germ Oil, Biochem. J. **31**: 2257 [Dec.] 1937) secured any α-tocopheryl allophanate, but only the β-.

23. Fernholz, E.: The Thermal Decomposition of α-Tocopherol, J. Am. Chem. Soc. **59**: 1154 (June) 1937.

sublimate which he identified as durohydroquinone (tetramethyl hydroquinone), and he suggested that α-tocopherol might be a mono-ether of durohydroquinone. The alkyl portion of the molecule is still under investigation. McArthur and Watson[24] have identified crystalline duroquinone in the selenium dehydrogenation products of α-tocopherol. They believe its origin to be in a sidechain consisting perhaps of two isoprene units. A fluorescent oily product, arising from the nucleus of α-tocopherol, is being investigated. Recently two new tocopherols from wheat germ oil have been described,[24a] neotocopherol and cumotocopherol, the latter appearing to be a mono ether of pseudocumohydroquinone.

PHYSIOLOGY AND PATHOLOGY

The progress of the chemical studies which have been outlined required continuous animal assays of the biologic activity of the products obtained. The most suitable method of assay uses adult female rats, properly prepared by subsistence on a diet deficient in vitamin E. Ability to bear living young following the administration by mouth of varying amounts of concentrates is a measure of vitamin E potency; when the dose is inadequate the embryos die and are resorbed.[25] There is considerable and thus far uncontrollable variability in the response of individual animals to the same dosage, and few statistical studies have been reported.[26] The reason for this is obvious: until recently the concentrates were all mixtures, and investigators were primarily interested in knowing the minimum effective dose of their preparations.

The necessity of vitamin E for normal embryonic growth in animals other than the rat and the mouse has not been established, but several suggestive observations have been made in the field of animal production. The use of wheat germ oil or of natural foodstuffs has lessened the significance of the experiments as regards vitamin E itself. In the case of herbivorous animals, the very real difficulty of supplying a ration which is adequate in all respects save vitamin E has sometimes been met by treating the food with an ethereal solution of ferric chloride, thereby introducing still further complications.[5] Such a ration has been found to support normal growth and reproduction in goats and rabbits for several generations.[27] Thus seven original goats increased to forty-eight in fifty-four months with no reproductive disorders attributable to avitaminosis E. Twelve original rabbits littered 137 young in two years; there were infrequent reproductive disorders the cause of which is not yet ascertained.

The carefully controlled veterinary studies on cattle have been continued by Vogt-Møller.[28] Intramuscular or preferably subcutaneous injection of 20 cc. of "Fertilan",[29] a sterilized wheat germ oil, into otherwise normal cows that have repeatedly failed to become pregnant was followed by pregnancy in thirty-three out of fifty instances. Similar results were reported by Tutt.[30] Large doses of wheat germ oil increased the size of rabbit litters,[31] wheat germ meal in the diet of sows reduced the mortality of suckling pigs,[32] but this improvement may have been due to other constituents. The reported occurrence of vitamin E in the queen bee's royal jelly[33] could not be confirmed.[34]

The results obtained with chickens are more conclusive and trustworthy because the vitamin E content of the food of the hens and of their eggs as determined by rat assay can be correlated with the hatchability of the eggs and the viability of the young chicks.[35] From such experiments it appears that vitamin E may be a limiting factor in the hatchability of eggs and that one manifestation of its deficiency is a first-week embryonic mortality. This is greatly reduced by supplying vitamin E in the poultry ration. Agricultural journals are beginning to carry advertisements recommending the use of feeds enriched with biologically tested wheat germ oil. If there is any justification for this, it arises in part in the increasing tendency to introduce concentrates and already compounded rations into animal feeding practice. A shortage of vitamin E might result from the consumption of a more or less limited diet, depending on the nature of the constituents. It is conceivable that on more natural forage, which would ordinarily supply enough E, an occasional animal might exhibit symptoms of a shortage through faulty absorption or metabolism.

The embryonic development of chicks in eggs from hens on a vitamin E deficient ration has shed some light on the abnormalities causing death in the embryo. According to Adamstone,[36] cell proliferation in the mesoderm produces a lethal ring in the blastoderm, whose blood vessels are choked off and disintegrate; the embryo dies from loss of blood and starvation. Observations on the degeneration in the testis of the male fowl[37] led him to conclude that vitamin E is intimately associated with the nucleus during cell division and probably exerts an indirect controlling influence.

Since the comprehensive morphologic studies made by Evans and Burr on the rat and described in their memoir, several workers have confirmed their observations. Thus Urner[38] found the embryo apparently normal until the tenth day, after which there was rarefaction of the mesenchyme and failure of the blood forming tissues. In the ectoplacenta also there was

24. McArthur, C. S., and Watson, E. M.: The Selenium Dehydrogenation of α-Tocopherol, Science **86:** 35 (July 9) 1937.

24a. Karrer, P.; Salomon, H., and Fritzsche, H.: Constituents of Plant Embryos, II: Neotocopherol, Helv. Chim. Acta **20:** 1422 (6) 1937. John, W.: Cumotokopherol, Ztschr. f. physiol. Chem. **250:** 11 (No. 1) 1937.

25. A more detailed exposition of the method of assay is given in the previous review[1] and elsewhere.[6]

26. Palmer, L. S.: Biological Assay of Vitamin E; Application to Wheat Germ and Wheat Germ Oil, Proceedings of the American Society of Biological Chemists **119:** lxxv (June) 1937; Indust. & Engin. Chem., Anal. Ed. **9:** 427 (Sept.) 1937.

27. Personal communication from Dr. B. H. Thomas, Ames, Iowa.

28. Bay, F., and Vogt-Møller, P.: Continued Studies on Treatment of Sterility in Cows and Breeding Sows with Wheat Germ Oil (Vitamin E), Vet. J. **80:** 288, 1934.

29. Vogt-Møller, P.: On Estimation of the Vitamin E Content of the Wheat-Germ Oil Preparation "Fertilan" Mco., Acta path. et microbiol. Scandinav. **12:** 115, 1935.

30. Tutt, J. F., quoted by Bay and Vogt-Møller.[28]

31. Schioppa, Luigi: Experimental Researches on Vitamin E: IV. Researches on the Influence of Vitamin E on Fertility and the Bodily Condition of the Offspring, Ztschr. f. Vitaminforsch. **5:** 22 (Jan.) 1936.

32. Auble, C. E.; Hughes, J. S., and Lienhardt, H. F.: The Influence of Vitamins B and E on Reproduction in Swine, Proc. Am. Soc. Animal Production, 1929, p. 133.

33. Hill, Leonard, and Burdett, E. F.: Fertility of Bees and Vitamin E, Nature **130:** 540 (Oct. 8) 1932. The proper conduct of a biologic assay requires some experience; wheat germ oils are not alike in their vitamin E content and due care must be exercised in the preparation of concentrates (Evans, H. M.; Murphy, E. A.; Archibald, R. C., and Cornish, R. E.: Preparation and Properties of Vitamin E Concentrates, J. Biol. Chem. **108:** 515 [Feb.] 1935).

34. Schoorl, P.: Vitamin E Research, Ztschr. f. Vitaminforsch. **5:** 246 (Oct.) 1936. Mason, K. E., and Melampy, R. M.: Absence of Vitamin E in the Royal Jelly of Bees, Proc. Soc. Exper. Biol. & Med. **35:** 459 (Dec.) 1936. Evans, H. M.; Emerson, Gladys A., and Ackert, J. E.: Alleged Vitamin E Content in Royal Jelly, J. Econ. Entom. **30:** 642, 1937.

35. Barnum, G. L.: The Vitamin E Content of Eggs as Related to the Diet of the Hen and to Hatchability, J. Nutrition **9:** 621 (May) 1935. Ender, Fredrik: Significance of Vitamin E in Poultry Husbandry, Ztschr. f. Vitaminforsch. **4:** 106 (April) 1935. Barbas, W. C.: The Influence of the Fertility Vitamin on Egg-Laying Hens, Landbouwkund. tijdschr. **48:** 669, 1936; through Chem. Abstr. **31:** 3531 (May 20) 1937.

36. Adamstone, F. B.: The Effects of Vitamin E Deficiency on the Development of the Chick, J. Morphol. & Physiol. **52:** 47 (Sept.) 1931.

37. Adamstone, F. B., and Card, L. E.: Effects of Vitamin E Deficiency on the Testis of the Male Fowl (Gallus Domesticus), J. Morphol. **56:** 339 (Sept.) 1934. Adamstone, F. B.: Possible Relation of Vitamin E to Unrestricted Cell Division, Science **80:** 450 (Nov. 16) 1934.

38. Urner, J. A.: The Intra-Uterine Changes in the Pregnant Albino Rat (Mus Norvegicus) Deprived of Vitamin E, Anat. Rec. **50:** 175 (Aug.) 1931.

failure of the mesodermal elements. According to others,[39] the malnutrition of the embryos is due at first to the imperfect phagocytic action of the trophoblast and later to imperfect development of allantoic blood vessels.

The striking difference in response to vitamin E deprivation by male and female animals can be explained, superficially, by the fact that in the male the damage is done to a part of the animal's own tissue and may for this reason be irreversible in contrast to the reparable damage in the female, which is wrought not on her own tissues but on those of the fetus. Among the nutritional factors concerned in testicular degeneration, vitamins A and E are probably the most important. On diets low in A and containing abundant E, degeneration appears earlier than under reversed conditions.[40] At first believed to be very similar,[41] the histologic pictures presented by the two conditions are different, as demonstrated in a comprehensive study by Mason.[42] Deficiency of vitamin E produces excessive liquefaction of the chromatin material, first in the spermatozoa and spermatids and later in the less mature cells; spermatogenic activity ceases soon after the first appearance of injury, whereas in vitamin A deficiency it continues in spite of considerable depletion of the germinal epithelium.[43] A careful survey of all the facts available leads Mason to the conclusion that vitamin E plays some very essential rôle in nuclear activities involving chromatin and is indispensable, especially in those tissues in which cellular proliferation and differentiation are unusually rapid. Such are the testis in the male and the developing embryo in the female.

A possible quantitative difference in the requirements of the two sexes[44] may emerge from this conception, the male requirement being greater than the female. This cannot be determined until larger amounts of the various tocopherols become available for study. Awaiting similar proof is the assumption of sex specific forms of vitamin E.[45]

Does vitamin E have any other functions in the animal economy beyond those concerned with reproduction? Its effect in increasing the number and viability of the young[46] is a common observation; vitamin E is probably not concerned with lactation. Its favorable influence on extra-uterine growth, first observed by Evans and by others,[42] was overlooked by some,[47] perhaps because their experiments were of too short duration. Interest was renewed in the subject by Blumberg[48] and by Ringsted.[49] The former demonstrated a retardation of growth in young rats at the twelfth to the fourteenth week (in males from the very beginning), complete cessation of growth at from eighteen to twenty-two weeks, and serious malnutrition and some muscular disturbance at from thirty to forty weeks when the animals were maintained on a highly purified ration deficient in vitamin E. Addition to the diet of wheat germ, the unsaponifiable fraction of its oil, or of natural foods known to contain E, produced a resumption of growth whereas allied substances known not to contain E had no effect. Ringsted's animals (females) reached a plateau of growth and first showed dragging of the hind limbs at 160 Gm. and at from 5 to 6 months of age; the paresis and malnutrition gradually increased on his synthetic diet, which contained lard previously aerated for ten hours at 110 C. and which was thus very rancid. Unfortunately he was unable to try curative procedures, but animals on the same diet that had received test doses of wheat germ oil adequate for successful reproduction remained free of paralysis.

Later work confirmed the growth promoting effect of vitamin E but without demonstrating any paralysis when this was withheld. Martin[50] exactly duplicated the basal diet and management that Blumberg used; the weights when growth ceased were slightly higher in both sexes, and the giving of a vitamin E concentrate restored growth. Attempts by various means to segregate a growth factor and a fertility factor in the concentrate led him to suggest that there were two agencies rather than a quantitative difference between the required amounts of a single substance. The total duration of his experiments is not indicated.

In a further study by Emerson and Evans,[51] female rats on an E-deficient diet were surpassed by controls only after 4 to 5 months of age and at 250 Gm. in weight, and massive doses of wheat germ oil restored growth. At 19 months of age untreated animals had an unsteady gait but no paralysis. Olcott and Mattill[52] also found no difference at 4 months between female animals on a synthetic E-deficient diet in which all the lipid constituents were of known composition, whether they were given a highly purified and tested concentrate of E or not. Male animals, on the other hand, were surpassed by controls from the age of 2 months; at 5 months the latter were 10 per cent heavier, but the former continued to grow and there was no paralysis. In both of these investigations an increased fat content (lard or ethyl esters of the fatty acids of edible fats) in the diet had a temporary stimulating effect on growth. Probably none of these studies were continued for a long enough time, for recently Burr and his co-workers[53] reported paralysis of the hind limbs in

39. Zagami, V., and Sindoni, M.: Vitamin E Deficiency and Pregnancy in Rats, Riv. di pat. sper. **12**: 1 (March) 1934; through Physiol. Abstr. **20**: 756 (Jan.) 1936.

40. Evans, H. M.: Testicular Degeneration Due to Inadequate Vitamin A in Cases Where E Is Adequate, Am. J. Physiol. **99**: 477 (Jan.) 1932.

41. Korenchevsky, V.: Sterility in Males on Diets Deficient in Vitamin A and E, Proc. Roy. Soc. Med. **26**: 1187 (July) 1933.

42. Mason, K. E.: Differences in Testis Injury and Repair After Vitamin A Deficiency, Vitamin E Deficiency and Inanition, Am. J. Anat. **52**: 153 (March) 1933.

43. Acccording to C. A. Pfeiffer (Some Factors Influencing the Vitalization of the Ovarian Graft and the Production of Sex Hormones in the Male Rat, Endocrinology **21**: 260 [March] 1937) diphtheria toxin produces a rapid degeneration of the germinal epithelium similar to that of vitamin E deprivation, except that it is reversible.

44. Waddell, James; Steenbock, Harry, and Hart, E. B.: Growth and Reproduction on Milk Diets, J. Nutrition **4**: 53 (May) 1931. Waddell, James: Male Sterility on Milk Diets, J. Nutrition **4**: 67 (May) 1931. Keil, H. L., and Nelson, V. E.: Preservation of Fertility in Male and Female Rats on a Supplemented Milk Diet, Proc. Soc. Exper. Biol. & Med. **33**: 490 (Jan.) 1936.

45. Grijns, G., and Dingemanse, E.: Diet and Reproduction: IV. The Bipartite Nature of Vitamin E, Proc. Acad. Sc. Amsterdam **36**: 242, 1933; through Chem. Abstr. **27**: 3974 (Aug. 20) 1933. Martino, G.: The Dual Nature of Vitamin E, Quaderni nutrizione **1**: 180, 1934; through Chem. Abst. **30**: 4546 (July 10) 1936. Cunningham, I. J., and Hopkirk, C. S. M.: Dietary Protein in Relation to Sterility, New Zealand. J. Sc. Tech. **17**: 420 (No. 1) 1935; through Chem. Abstr. **30**: 142 (Jan. 10) 1936. Martino, G., and Knallinsky, A.: The Vitamin E Content of the Manioc Root, Boll. soc. ital. biol. sper. **8**: 819, 1933; through Chem. Abstr. **29**: 3005 (May 10) 1935. Arthus, A.: Feeding Rats Exclusively with Milk Powders of the Same Origin but of Different Butterfat Contents, Bull. Soc. scient. d'hyg. aliment. **24**: 218, 1936; through Chem. Abstr. **30**: 7639 (Nov. 10) 1936.

46. Schioppa, Luigi: Vitamin E: III. Influence of Vitamin E on Normal Animals, with Respect to Fertility, Size of Litter, and Somatic Characters, Ztschr. f. Vitaminforsch. **4**: 167 (July) 1935.

47. Hogan, A. G.; Hunter, J. E., and Shrewsbury, C. L.: The Relation of Diet to Bodily Activity and to Capacity to Withstand Unfavorable Circumstances, Bull. 256, University of Missouri Experiment Station, 1927, p. 50. Marchesi, Franco: Vitamin E and Reproductive Function in Albino Rats, Sperimentale, Arch. di biol. **89**: 119, 1935; through Chem. Abstr. **29**: 5895 (Sept. 10) 1935.

48. Blumberg, Harold: A Growth Deficiency Disease, Curable by Wheat Germ Oil, J. Biol. Chem. **108**: 227 (Jan.) 1935.

49. Ringsted, Axel: A Preliminary Note on the Appearance of Paresis in Adult Rats Suffering from Chronic Avitaminosis E, Biochem. J. **29**: 788, 1935.

50. Martin, G. J.: Vitamin E, J. Nutrition **13**: 679 (June) 1937.

51. Emerson, Gladys A., and Evans, H. M.: The Effect of Vitamin E Deficiency upon Growth, J. Nutrition **14**: 169 (Aug.) 1937.

52. Olcott, H. S., and Mattill, H. A.: Vitamin E and Growth, J. Nutrition **14**: 305 (Sept.) 1937.

53. Burr, G. O.; Brown, W. R., and Moseley, R. L.: Paralysis in Old Age in Rats on a Diet Deficient in Vitamin E, Proc. Soc. Exper. Biol. & Med. **36**: 780 (June) 1937.

22 months old female rats that had been on a highly purified E-deficient diet from weaning.

Equally mysterious is the paralysis in suckling rats from vitamin E-deficient mothers. First observed and studied by Evans, its incurable nature and its prevention by wheat germ oil and vitamin E concentrates have been confirmed repeatedly.[54] This condition was originally thought to be of nervous origin,[55] but it has now been definitely associated with skeletal muscles.[56] The muscles exhibit extensive degeneration and necrosis and their microscopic changes are not to be distinguished from those of muscular dystrophy in herbivora discussed later in this report; less extensive lesions may be present in the musculature of animals showing no external symptoms of paralysis or weakness.

The serious paralysis in first generation adult rats (Ringsted) was associated with a diet containing very rancid fat. The antioxygenic effect of the tocopherols and other inhibitors has up to now been considered as limited to the dietary mixture in which they are found and not as extending into the organism and its physiologic processes. Possibly the prolonged exposure of tissues to autoxidizing fatty acids and their products is as damaging to their chemically sensitive constituents as it is to the autoxidizable constituents of experimental diets. Support for this suggestion is found in the observations of Waddell and Steenbock[57] to the effect that on a ration treated with ferric chloride female rats were unable to use even large stores of vitamin E and did not acquire this ability until from four to six weeks after transfer to a nonoxidized basal ration. A further interesting item has recently come to notice;[58] subcutaneous injection (0.1 Gm.) of a concentrate prepared from rancid fat and containing aldehydes and ketones produced resorption of the embryos or failure of implantation[58a] and fertility rapidly returned on discontinuance of the injections. Confirmation and interpretation of these observations will be significant for a proper understanding of the functions of vitamin E and its allied substances.

The relation of these various instances of paralysis to the muscular dystrophy first observed in herbivorous animals by Goettsch and Pappenheimer[59] is not clear. The latter type of dystrophy was first produced in guinea pigs and rabbits, even in utero,[60] on a diet deficient in vitamin E, but the addition of this to the diet did not prevent the development of the disease. On the same deficient diet, rats did not manifest the disease. According to Madsen, McCay and Maynard,[61] cottonseed oil (containing a concentrate of vitamins A and D) in place of cod liver oil afforded a high degree of protection, and one of the causative factors resided in the saponifiable fraction of cod liver oil. Recently McCay, Paul and Maynard[62] reported that the untoward effects produced by cod liver oil in the diet of herbivora were abolished when hydrogenated cod liver oil replaced the natural product. Muscle lesions in guinea pigs were entirely prevented by this substitution. Fats that easily become rancid are greatly stabilized by hydrogenation.[63]

The experiments of Morgulis and Spencer[64] indicate that at least two factors are involved in this muscular degeneration; one of them is easily destroyed by treatment of the ration with ethereal ferric chloride. Both factors are present in fresh green alfalfa or in whole wheat germ; one of them is found in wheat germ oil, the other in lettuce or in dry alfalfa. The value of their metabolic and blood studies[65] is limited by the fact that inanition accompanies the dystrophy. The oxygen consumption of these degenerated muscles seems to be elevated,[66] but the metabolic rate of the afflicted animals is normal.[67]

What value these observations may have for the understanding of human muscular dystrophy should be and is doubtless already a subject for careful inquiry. It must also be determined whether the resistance of rats is evidence of a qualitative or quantitative difference between them and the herbivora.

A functional relation between vitamins and internal secretions has been an intriguing if not very fruitful idea. Naturally, a possible connection of vitamin E with the sex hormones came to mind. It was Verzár[68] who first stated that vitamin E acted like anterior hypophysial hormone in inducing precocious sexual maturity in young female rats but not in castrates and that E might be necessary for the formation of the hypophysial hormone. Szarka[69] even concluded that E might be a building stone or precursor of the ovarian hormone, but since estrus is usually normal in vitamin E deficiency so direct a relationship is physiologically inadmissible. These views have found experimental contradiction in the work of many investigators;[70] vitamin E does not exhibit gonadotropic or luteinizing effects, nor do extracts of anterior pituitary, or pregnancy urine or

54. Morelle, Jean: Influence of Deprivation of Vitamin E on Lactation in the Rat, Compt. rend. Soc. de biol. **108:** 804 (Nov. 27) 1931. Olcott and Mattill.[6] Mason.[42]

55. Lipschutz, Daniel: Degeneration of Nerve Tracts in Young Rats Lacking Vitamin E, Rev. neurol. **65:** 221 (Feb.) 1936.

56. Olcott, H. S.: Paralysis in the Young of Vitamin-E Deficient Female Rats, Proceedings of the American Society of Biological Chemists **119:** lxxiv (June) 1937. J. Nutrition **15:** 221 (March) 1938.

57. Waddell, James, and Steenbock, Harry: Vitamin E in Iron Treated Dry Rations, J. Nutrition **4:** 79 (May) 1931.

58. Kudryashov, B. A., and Agatov, P. A.: Sterilization by Means of Decomposed Fat, Ginekologia i Akusherstvo **6:** 1, 1935; through Chem. Abstr. **31:** 1873 (March 20) 1937.

58a. In this connection see also Bacharach, A. L.; Allchorne, Edith, and Glynn, H. E.: The Influence of Vitamin E Deficiency on Implantation, Biochem. J. **31:** 2287 (Dec.) 1937.

59. Goettsch, Marianne, and Pappenheimer, A. M.: Nutritional Muscular Dystrophy in the Guinea Pig and Rabbit, J. Exper. Med. **54:** 145 (Aug.) 1931. Pappenheimer, A. M., and Goettsch, Marianne: Nutritional Myopathy in Ducklings, ibid. **59:** 35 (Jan.) 1934.

60. Pappenheimer, A. M., and Goettsch, Marianne: Transmission of Nutritional Muscular Dystrophy to Rabbits in Utero, Proc. Soc. Exper. Biol. & Med. **34:** 522 (May) 1936.

61. Madsen, L. L.; McCay, C. M., and Maynard, L. A.: Synthetic Diets for Herbivora with Special Reference to the Toxicity of Cod Liver Oil, Bull. 178, Cornell University Agricultural Experimental Station, 1935, p. 3; Proc. Soc. Exper. Biol. & Med. **30:** 1434 (June) 1933. Madsen, L. L.: The Comparative Effects of Cod Liver Oil, Cod Liver Oil Concentrate, Lard and Cottonseed Oil in a Synthetic Diet on the Development of Nutritional Muscular Dystrophy, J. Nutrition **11:** 471 (May) 1936.

62. McCay, C. M.; Paul, Henry, and Maynard, L. A.: The Removal by Hydrogenation of the Properties of Cod Liver Oil Which Are Harmful to Herbivora, read before the meeting of the American Chemical Society in Rochester in September 1937.

63. Nutritional encephalomalacia in chicks was completely prevented by including various vegetable oils in the diet (Pappenheimer, A. M., and Goettsch, Marianne: Protection Afforded by Certain Vegetable Oils Against Nutritional Encephalomalacia in Chicks, Proc. Soc. Exper. Biol. & Med. **31:** 777 [April] 1934). Vegetable oils contain inhibitols;[9] animal fats do not.

64. Morgulis, Sergius, and Spencer, H. C.: A Study of the Dietary Factors Concerned in Nutritional Muscular Dystrophy, J. Nutrition **11:** 573 (June) 1936.

65. Morgulis, Sergius, and Spencer, H. C.: Studies on the Blood and Tissues in Nutritional Muscular Dystrophy, J. Nutrition **12:** 173 (Aug.) 1936; Metabolism Studies in Nutritional Muscular Dystrophy, ibid. **12:** 191 (Aug.) 1936.

66. Victor, Joseph: Metabolic and Irritabilty Changes in Nutritional Myopathy of Rabbits and Ducks, Am. J. Physiol. **108:** 229 (April) 1934. Madsen.[61]

67. Wood, E. L., and Hines, H. M.: Effect of Vitamin E Deficient and Muscular Dystrophy-Producing Diet on Metabolism of Guinea Pigs, Proc. Soc. Exper. Biol. & Med. **36:** 746 (June) 1937.

68. Verzár, Friedrich: The Influence of Diet on Internal Secretion, Proc. Staff Meet., Mayo Clin. **4:** 351 (Dec. 4) 1929.

69. Szarka, A.: The Action of E on Ovarian Function: XI. Estrus and Avitaminosis, Arch. f. d. ges. Physiol. **223:** 657 (Dec. 10) 1929.

70. Csik, Lajos: Mechanism of the Action of Vitamin E: Action of Menformone, Magyar Biol. Kutato Intezet Munkai **5:** 179, 1932; through Chem. Abstr. **27:** 2183 (May 10) 1933. Kudryashov, B. A.: Vitamins and the Female Sex Hormone: Is Vitamin E Necessary for the Synthesis of the Female Sex Hormone in Females? Dynamics Development (U. S. S. R.) **10:** 37, 1935; through Chem. Abstr. **30:** 4204 (June 20) 1936. Diakov, F. A., and Krizenecky, J.: Vitamin E and Pituitary Hormone: I and II, Proc. Soc. Exper. Biol. & Med. **31:** 59 (Oct.) 1933. Saphir, William: Vitamin E and the Gonads, Endocrinology **20:** 107 (Jan.) 1936. Geller, F. C.: Vitamin E and Hormones, Arch. f. Gynäk. **156:** 345 (Dec.) 1933. Nelson, W. O.: Studies on the Anterior Hypophysis: III. The Anterior Hypophysis in Vitamin E-Deficient Rats, Anat. Rec. **56:** 241 (June) 1933. Olcott and Mattill.[6]

extracts of corpus luteum prevent reproductive failure in rats on vitamin E-deficient diets.

Although recently denied,[71] there seems no doubt that, as first noted by van Wagenen,[72] cellular changes take place in the anterior hypophysis of vitamin E-deficient male animals;[73] so-called castration cells appear, which are enlarged vacuolated basophile cells, but not of the signet ring type observed in surgical castrates. The condition is more marked in castrates than in vitamin E-deficient males; the glands of vitamin E-deficient female animals remain normal. E-deficient male pituitaries are more potent in the gonad-stimulating hormone than glands from normal animals and less potent than those of castrates, whereas E-deficient female glands do not differ from normal. This sex-different response in the pituitary would support the belief that the changes observed are directly the result of gonadal degeneration and are only indirectly concerned with vitamin E. The same significance probably attaches to the progressive hypertrophy of the mammary glands of vitamin E-deficient rats throughout a resorption gestation.[74]

More recently however, biologic assay of pituitaries of E-free female rabbits by Rowlands and Singer[75] has given contrary results; such pituitaries demonstrated a decreased content of the luteinizing or ovulation-producing substance that is active in the rabbit, but such deficiency could not be considered a primary cause of the fetal resorption. The finding of hypoplastic thyroids in female E-deficient rats,[76] with return to normal appearance on administering E, suggests that thyrotropic as well as gonadotropic activity of the pituitary may be altered in the absence of vitamin E. Cretinism in young E-deficient rats has also been reported.[77]

Interest in the possible relationship of vitamin E to malignancy was awakened by Davidson's observations on tar cancer in susceptible mice.[78] The incidence of such cancer was delayed and less frequent, and the animals remained in health longer, on an E-containing diet than on one deficient in it. Davidson acknowledged that the E-containing diet was better in other respects also, notably in vitamins B_1 and B_2. Earlier observations of Zagami[79] on the growth of grafts of Jensen sarcoma in rats demonstrated no significant differences as between animals with and without E in the diet. In the hands of Haddow and Russell,[80] liberal addition of wheat germ to the diet had no influence on the subsequent emergence of benzpyrene tumors, and unpublished work from this laboratory[81] on the incidence and metastasis of methyl cholanthrene cancers in both ordinary and susceptible mice is to the same effect. On the other hand, Adamstone[82] found that the feeding of a ferric chloride treated diet to young chicks caused the development of characteristic visceral lesions, lymphoblastomas, with destruction of normal tissue and invasion by new cell growths. The uncertainty of the character of ferric chloride damage forbids any conclusions at this stage of study.[83] In this connection two unconfirmed reports should be mentioned; the healing of skin wounds in rats is hastened by a diet rich in E[84] or by external application of a concentrate.[85]

THERAPY

Definite proof for the value of vitamin E as a remedy for sterility in human beings is manifestly difficult to secure. Many causes and conditions have been shown to be associated with human sterility, and, so far as animal experiments indicate, vitamin E is directly concerned with only one phase of the female reproductive process, namely, the blood supply and nutrition of the embryo, and in the male with the maintenance of testicular function. By analogy, an inadequacy of vitamin E in the human male might therefore be revealed either by nonviability or by complete absence of sperm; in the female by abortion, the physiologic counterpart of resorption in rats. Such analogies are unsafe as between animals of different species, for they may imply too much or too little.

Early observations[1] on the value of vitamin E in habitual abortion have been continued and amplified. Vogt-Møller[86] has reported two series of twenty and fifty-two cases in which no anatomic or physiologic abnormalities could explain repeated abortion. Administration of 3 Gm. daily of a purified wheat germ oil preparation resulted in the birth of living children in seventeen and thirty-eight cases, respectively. Watson and Tew[87] reported success in thirty-four of forty-six cases of previous abortion; wheat germ oil may also be useful as an adjunct in threatened abortion but is of no avail in the treatment of nonfertility from other causes. The success of Currie[88] seems to have been still more pronounced. By administering daily from the time of first attendance to the onset of labor a 3 minim (0.2 cc.) capsule containing a concentrate (Glaxo) from 5 Gm. of wheat germ oil, he secured twenty-three normal births out of twenty-four cases in which the aggregate seventy-three previous pregnancies had resulted in only 14 per cent of living children.

Massive doses of wheat germ oil have also, according to Shute,[89] been useful in abruptio placentae and have

71. Müller, J. H., and Müller, C.: Morphological Changes in the Adenohypophysis of Rats on a Vitamin E-Free Diet, Endokrinologie **18:** 369 (May) 1937; through Chem. Abstr. **31:** 5025, 1937.

72. van Wagenen, Gertrude: Histological Changes in the Male Rat Hypophysis Following Degeneration of the Germinal Epithelium, Anat. Rec. **29:** 398 (March) 1925.

73. Stein, S. I.: Experimental Studies on the Hypophysis Cerebri: IV. The Effect of Vitamin E Deficiency in the Female Albino Rat. J. Nutrition **9:** 611 (May) 1935. Geller.[70] Nelson.[70]

74. Urner, J. A.: The Changes in the Mammary Glands of Pregnant Albino Rats Deprived of Vitamin E, Sect. Obst., Gynec. & Abd. Surg., A. M. A., 1930, p. 34.

75. Rowlands, I. W., and Singer, Eleanor: Gonadotropic Activity of the Pituitaries of Vitamin E Deficient Rats, J. Physiol. **86:** 323 (March) 1936.

76. Singer, Eleanor: Effects of Vitamin E Deficiency on the Thyroid Gland of the Rat, J. Physiol. **87:** 287 (Aug.) 1936.

77. Barrie, M. M. O.: Effect of Vitamin E Deficiency on the Thyroid, Nature **139:** 286 (Feb. 13) 1937.

78. Davidson, J. R.: An Attempt to Inhibit the Development of Tar Carcinoma in Mice, Canad. M. A. J. **31:** 486 (Nov.) 1934; **32:** 364 (April) 1935.

79. Zagami, V.: Effect of Vitamin E on Development of Rat Sarcoma, Riv. di pat. sper. **11:** 381 (Dec. 31) 1933; through Physiol. Abstr. **19:** 348 (Aug.) 1934.

80. Haddow, Alexander, and Russell, Helen: The Influence of Wheat-Germ Oil in the Diet on the Induction of Tumors in Mice, Am. J. Cancer **29:** 363 (Feb.) 1937.

81. Carruthers, Christopher: Unpublished data.

82. Adamstone, F. B.: A Lymphoblastoma Occurring in Young Chicks Reared on a Diet Treated with Ferric Chloride to Destroy Vitamin E, Am. J. Cancer **28:** 540 (Nov.) 1936.

83. Sufficient opportunity and time have not yet been afforded for verification of a striking announcement recently made by Rowntree and his co-workers (Rowntree, L. G.; Steinberg, A.; Dorrance, G. M., and Ciccone, E. F.: Sarcoma in Rats from the Ingestion of a Crude Wheat Germ Oil made by Ether Extraction, Am. J. of Cancer **31:** 359 [Nov.] 1937). When rats on an ordinary stock ration were fed a crude preparation of ether-extracted wheat germ oil, malignant tumors developed in the peritoneal cavity. They had the characteristics of spindle cell sarcoma and retained their malignancy through successive transplantations. Various preparations of refined wheat germ oil, extracted or expressed, and other vegetable and animal oils had no such effect. Whatever the agent may be, it is not vitamin E.

84. Pegreffi, Enrico: Influence of Vitamin E on Healing of Skin Wounds, Pathologica **27:** 543 (Aug. 15) 1935.

85. Léránth, Géza, and Frank, László: Significance of Vitamin E in Dermatology, Orvosi hetil. **80:** 778 (Aug. 15) 1936; through Chem. Abstr. **30:** 7634, 1936.

86. Vogt-Møller, P.: Treatment of Sterility and Habitual Abortion with Wheat Germ and Oil of Wheat Germ (Vitamin E), Hospitalstid. **76:** 621 (June 1) 1933; Acta obst. et gynec. Scandinav. **13:** 219, 1933; The Treatment of Patients Subject to Chronic Abortion with Wheat-Germ Oil (Vitamin E), Klin. Wchnschr. **15:** 1883 (Dec. 19) 1936.

87. Watson, E. M., and Tew, W. P.: Wheat Germ Oil (Vitamin E) Therapy in Obstetrics, Tr. Am. A. Obst., Gynec. & Abd. Surg. **48:** 189, 1935. Watson, E. M.: Clinical Experiences with Wheat Germ Oil (Vitamin E), Canad. M. A. J. **34:** 134 (Feb.) 1936.

88. Currie, D. W.: Vitamins for Habitual Abortion, Brit. M. J. **1:** 752 (April 11) 1936.

89. Shute, Evan: Early Diagnosis of Abruptio Placentae and Its Treatment with Wheat Germ Oil, Am. J. Obst. & Gynec. **33:** 429 (March) 1937.

prevented progress of these cases to a severe stage of placental detachment. This clinical experience followed the observation [90] that the blood serum of aborting women had an increased resistance to tryptic proteolysis and that the serum of rats acquired the same property after about four months on a vitamin E-deficient diet; normal digestibility was restored in both cases by administering vitamin E. There is as yet no physiologic explanation for this.

More clinical evidence, obtained under carefully controlled conditions, is greatly needed to establish the usefulness of vitamin E therapy in abnormal human reproduction. Until this is at hand, attempts to produce a market for wheat germ oil among prospective parents generally are to be deprecated; so also is the suggested threat of national dietary sterility, in view of the widespread distribution of vitamin E in the foods belonging in a well balanced diet. Individual cases of inadequacy, due perhaps to faulty absorption or metabolism will not be understood until more is known about the chemistry and physiology of vitamin E.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

SULFANILAMIDE (See New and Nonofficial Remedies, 1938, p. 450).

Sulfanilamide Tablets, 5 grains.
Prepared by Schieffelin & Co., New York, N. Y. No U. S. patent or trademark.

MANDELIC ACID (See New and Nonofficial Remedies, 1938, p. 292).

Mandelic Acid-Calco.—A brand of mandelic acid-N. N. R.

Manufactured by the Calco Chemical Company, Inc., Bound Brook, N. J. No U. S. patent or trademark.

SODIUM CACODYLATE (See New and Nonofficial Remedies, 1938, p. 102).

Hyposols Sodium Cacodylate, ¾ grain (0.048 Gm.), 1 cc.
Prepared by The Drug Products Co., Long Island City, N. Y.
Hyposols Sodium Cacodylate, 1½ grains (0.10 Gm.), 1 cc.
Prepared by The Drug Products Co., Long Island City, N. Y.
Hyposols Sodium Cacodylate, 3 grains (0.194 Gm.), 1 cc.
Prepared by The Drug Products Co., Long Island City, N. Y.
Hyposols Sodium Cacodylate, 5 grains (0.324 Gm.), 1 cc.
Prepared by The Drug Products Co., Long Island City, N. Y.
Hyposols Sodium Cacodylate, 7½ grains (0.5 Gm.), 5 cc.
Prepared by The Drug Products Co., Long Island City, N. Y.

CEVITAMIC ACID (See New and Nonofficial Remedies, 1938, p. 480).

Cevitamic Acid-P. D. & Co.—A brand of cevitamic acid-N. N. R.

Manufactured by Parke, Davis & Co., Detroit. No U. S. patent or trademark.

Tablets Cevitamic Acid-P. D. & Co., 25 mg.

CHEPLIN'S EPINEPHRINE HYDROCHLORIDE SOLUTION (See New and Nonofficial Remedies, 1938, p. 232).
The following dosage forms have been accepted:

Cheplin's Epinephrine Hydrochloride Solution, 1:1,000, 10 cc.: marketed in rubber stoppered vials for parenteral administration.
Cheplin's Epinephrine Hydrochloride Solution, 1:000, 30 cc.: Marketed in rubber stoppered vials for parenteral administration and in screw cap vials for topical administration.

90. Shute, Evan: Resistance to Proteolysis Found in the Blood Serum of Aborting Women, J. Obst. Gynaec. Brit. Emp. **42**: 1071, 1085 (Dec.) 1935; Relation of Deficiency of Vitamin E to Antiproteolytic Factor Found in Serum of Aborting Women, ibid. **43**: 74 (Feb.) 1936.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

CHOCALOSE

Manufacturer.—Borcherdt Malt Extract Company, Chicago.

Description.—A chocolate flavored drink base containing powdered malt extract, chocolate, maltose, dextrose, bone calcium phosphate, and iron and ammonium citrate.

Manufacture.—The ingredients in formula proportions are mixed, resulting in a heavy liquid syrup. The mixture is dried to powder in vacuum driers and ground.

Analysis (submitted by manufacturer).—Moisture 3.1%, total solids 96.9%, ash 5.5%, fat (ether extract) 7.2%, protein (N × 6.25) 8.3%, reducing sugars (as maltose) 66.3%, dextrose 9.5%, carbohydrates (by difference) 75.9%, caffeine 0.06%, theobromine 0.23%, calcium (Ca) 1.36%, phosphorus (P) 1.50%, iron (Fe) 0.094%, magnesium (Mg) 0.90%, potassium (K) 0.17%, sodium (Na) 0.01%, sulfur (S) 0.06%, copper a trace, manganese a trace, zinc a trace.

Calories.—4.0 per gram; 114 per ounce.

Vitamins.—74 International units of vitamin B_1 per ounce or 2.59 International units per gram.

PRUDENCE MACARONI WITH BEEF SAUCE

Manufacturer.—Boston Food Products Company, Boston.

Description.—Canned macaroni containing tomato purée, hydrolyzed wheat protein product, onion, beef, olive oil, cracker meal, vegetable shortening and seasoning.

Manufacture.—Ground onions and ground beef are sautéd in hot vegetable oil. The tomato purée, water and wheat protein product, which is used for flavoring purposes, are added and the mixture is boiled; the cracker meal and seasoning are then added and the mixture is boiled again. The cans are partly filled with the sauce and then the desired amount of cooked macaroni is added and lastly enough sauce is added to fill the cans. The cans are passed through rotary steam exhausters for five minutes at 180 F., sealed, heat processed and cooled.

Analysis (submitted by manufacturer).—Moisture 81.8%, total solids 18.2%, ash 1.2%, fat (ether extract) 2.0%, protein (N × 6.25) 3.6%, crude fiber 0.1%, carbohydrates other than crude fiber (by difference) 11.3%.

Calories.—0.8 per gram; 22.7 per ounce.

SUNNY DELL BRAND EVAPORATED MILK

Manufacturer.—Pevely Dairy Company, St. Louis.

Description.—Unsweetened, sterilized, evaporated milk.

Manufacture.—Milk from company inspected farms is tested, preheated, evaporated under vacuum, homogenized, cooled, standardized, filled into cans, sealed and sterilized.

Analysis (submitted by manufacturer).—Moisture 73.9%, total solids 26.1%, ash 1.3%, fat 7.9%, protein (N × 6.38) 7.5%, lactose 8.9%.

Calories.—1.37 per gram; 40 per ounce.

MRS. PALEY'S BABY FOOD—STRAINED FRIJOLE BEANS

Manufacturer.—Paley-Sachs Food Company, Houston, Texas.

Description.—Canned, cooked, sieved frijole beans.

Manufacture.—Dried frijole beans are soaked, pressure cooked, sieved, filled into glass jars, vacuum sealed and heat processed.

Analysis (submitted by manufacturer).—Moisture 77.0%, total solids 23.0%, ash 1.1%, fat (ether extract) 0.2%, protein (N × 6.25) 5.7%, crude fiber 1.0%, reducing sugars as dextrose 0.2%, sucrose 1.2%, total carbohydrate other than crude fiber (by difference) 15.0%, iron (Fe) 0.0013%, phosphorus (P) 0.090%, calcium (Ca) 0.042%.

Calories.—0.8 per gram; 22.7 per ounce.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 28, 1938

MISINFORMED SENATE PASSES BILL FAVORING OSTEOPATHY

Senator Burke of Nebraska on Jan. 29, 1937, introduced a bill [1] to amend the United States Employees' Compensation Act so as to give osteopaths the same status under that act as is given to qualified physicians. On Feb. 11, 1937, Representative Drew of Philadelphia, himself an osteopath, introduced a bill [2] in the House of Representatives identical in its terms with Senator Burke's bill. These bills were referred respectively to the Senate and the House Committees on the Judiciary.

On behalf of the American Medical Association, protests were promptly filed and requests made that the American Medical Association be heard in opposition to such legislation. The situation was discussed editorially in THE JOURNAL, Feb. 20, 1937. Letters were written to secretaries of all state medical associations of states represented on the two congressional committees before which the bills were pending, suggesting that protests be filed with the two committees.

A subcommittee of the House Committee on the Judiciary gave a hearing on the bill, June 4, 1937, at which the American Medical Association was represented. The subcommittee later discussed with the Association amendments to the bill proposed by its osteopathic promoters. The subcommittee was informed that the amendments would not remove the opposition of the American Medical Association to the bill because that opposition was based on the unfitness of osteopaths generally to perform the duties that they would be liable to be called on to perform if the bill was enacted. Nevertheless, the bill was favorably reported by the committee, April 21, 1938. This situation was called to the attention of the medical profession by an editorial in THE JOURNAL, April 30, and to the attention of the several state medical associations by letter, with a view to eliciting protests by them. The bill, however, was reached on the Consent Calendar May 2, the ninth business day after it was reported, and, there being no objection to its consideration, the bill as reported by the committee was passed without a voice being raised in opposition and with no debate whatever. The bill then went to the Senate and was there referred to the Committee on the Judiciary, in which its companion bill, introduced by Senator Burke, S. 1233, was pending. Notwithstanding the protest of the American Medical Association and protests that had been filed on behalf of state medical associations and without granting a hearing and even without referring the bill to a subcommittee for study and report, the Senate committee, May 9, ordered a favorable report on the bill.

When it was learned that the committee had taken that action on the basis of a statement made to it that the amendments inserted by the House of Representatives had removed all objection raised by the American Medical Association and others to the bill, a telegram was sent to Senator Ashurst of Arizona, chairman of the committee, informing him that the amendments had in no way diminished the opposition of the Association to the proposed legislation. His attention was called to the pending protest of the American Medical Association and its request for a hearing, and he was urged to take such action as might be necessary to give the Association an opportunity of showing why the proposed legislation should not be enacted. To this Senator Ashurst replied that the telegram would be laid before the Committee on the Judiciary for attention and consideration. Letters were promptly sent to state medical associations in the states represented on the committee and to certain other state medical associations calling their attention to the situation and urging their aid in defeating the proposal to place osteopaths throughout the country on the same basis as qualified physicians under the United States Employees' Compensation Act. The response by the state medical associations appealed to was general and vigorous.

Nevertheless, no action was taken to recommit the bill. It was called up in the Senate on May 18, at which time Senator King of Utah, without formally objecting to consideration of the bill, called attention to the fact that he had received a number of communications objecting to it and insisting on opportunities to be heard. To Senator King, Senator Burke made the following remarkable reply:

> "The representatives of the medical societies suggested an amendment which has been put into the bill as it now stands. Those representatives, presumably speaking for all the national medical societies, have withdrawn their objection completely, and say that the bill is now all right."

Senator Burke reiterated later that the physicians stated they had no further objection to the bill, in view of the amendments that had been added by the House of Representatives. The bill was thereupon passed.

1. S. 1233, Seventy-Fifth Congress.
2. H. R. 4650, Seventy-Fifth Congress.

As far as the American Medical Association is informed, no physician authorized to speak or act for organized medicine took any part in framing the amendments that were added in the House of Representatives. These amendments, incidentally, are utterly misleading, for they do nothing more than provide that osteopaths in the several states shall limit themselves to osteopathic treatment as authorized by the laws of the states. Osteopaths would have been bound to observe such limitations without any such amendments.

The identity of "representatives, presumably speaking for all the national medical societies," on whom Senator Burke relied when he informed the Senate as to the representation is a mystery.

The whole incident gives rise to serious thought on the part of those familiar with the facts of the case as to the possibility of similarly misinformed actions in other cases.

ATMOSPHERIC CONTAMINATION

The study of air pollution in our large cities has been enormously stimulated. Every one is aware of the smoke pall which hangs over us; many are disturbed as to possible deleterious effects on our health. The investigations of the Mellon Institute of Industrial Research from 1911 to 1914 disclosed that the economic loss in the Pittsburgh area alone was $10,000,000 annually. This cost was principally due to waste fuel, increased cleaning bills, ruined merchandise and corrosion of buildings. The problem is not, however, confined to cities of the United States. The recent study by Barrett [1] on atmospheric pollution in Toronto employed the methods developed by the committee for investigation of such fouling in Great Britain. Deposited impurity was measured at three locations within and at one location outside the city. Total solids deposited at the three locations within the city averaged 341, 358 and 610 tons per square mile annually, as compared with an annual deposit of 133 tons in the area outside the city. During the winter the average hourly suspended impurity was less than that found in London, England, but almost identical in amount with that found in the five cities of the United States showing maximum pollution. During the summer, in fact, more impurity was suspended in Toronto air than was found in the five United States cities. The comparison of the air on Sundays and week days showed the major part of Toronto's pollution to be of nonindustrial origin. Although, as Barrett points out, definite proof is lacking that smoke is significant from the standpoint of health, further studies may substantiate the alleged harmful effects. Even without such proof, however, purely economic and esthetic considerations should be sufficient to increase the control of the situation.

1. Barrett, Hugh M.: Atmospheric Pollution in Toronto, Canada, Canad. Pub. Health J. **29**: 1 (Jan.) 1938.

A report bearing on another phase of this problem has been published by Buchbinder and his collaborators.[2] This study was aimed at determining the number of alpha streptococci in the air in several types of locations in New York City. A total of 2,517 samples of air were examined by means of the Wells air centrifuge, sheep's blood agar cultures being used for determining the presence of alpha hemolytic streptococci. Forty-six per cent of the samples were from six schools, 20 per cent from the cars of a subway and 34 per cent from six theaters, six streets and a park. More streptococci were found in schools than in any of the other locations, as was evidenced both by the total number per cubic foot and by the percentage in positive samples. The subway, however, was a close second.

The streptococci found were studied from the point of view of their fermentation reactions, final p_H in dextrose broth, effect on litmus milk, and macroscopic and microscopic structure and effect on blood. The results indicated that although most properties of definite air streptococci agree well with those of common throat strains, several properties of the putative strains are at variance. The analysis of these similarities and divergences makes it seem justifiable, the authors believe, to assume that the aberrant forms are closely related to the streptococci of the throat and possibly derived from them. They concluded that streptococci of the alpha hemolytic type are widely distributed in the air, both in enclosed places of congregation and in the open spaces of a large city. A majority of the streptococci seem to be of nasopharyngeal origin. Many of them differ, however, in structure and in certain biochemical properties from typical alpha streptococci of the throat. It is suggested that these differences are due to the effects of aerial environment. There appears to be, finally, some association between the differences in streptococcus content of the air of enclosed places and the facilities for ventilation, though this point is somewhat difficult to correlate.

Such studies as these serve to corroborate the already well established fact that pollution of the air of our large cities is economically wasteful and hygienically undesirable. The factual information collected by these and similar investigations should not be allowed to go to waste by failure of municipal authorities to act. While further information on the exact effects of atmospheric pollution in the large cities on the health of the population is desirable and necessary, active attempts to improve the air both inside and outside buildings should not be delayed for further positive proof of injurious effects.

2. Buchbinder, Leon; Solowey, Mathilde, and Solotorovsky, Morris: Alpha Hemolytic Streptococci of Air, Am. J. Pub. Health. **28**: 61 (Jan.) 1938.

DISCLOSURE OF DRUG FORMULAS UNDER FEDERAL TRADE COMMISSION ACT

The Federal Trade Commission Act, as amended by the Wheeler-Lea Act of March 21, 1938,[1] forbids the dissemination of false advertisements to induce the sale of foods, drugs, diagnostic and therapeutic devices and cosmetics in interstate and foreign commerce and in commerce in the District of Columbia or in any territory. It provides, however, that—

> No advertisement of a drug shall be deemed to be false if it is disseminated only to members of the medical profession, contains no false representation of a material fact, and includes, or is accompanied in each instance by truthful disclosure of, the formula showing quantitatively each ingredient of such drug.[2]

The only discoverable purpose of this provision of the act is to establish one rule of interpretation for the determination of the truth or falsity of advertisements of drugs when the advertisements are disseminated only to members of the medical profession and another rule for the interpretation of advertisements of drugs under all other circumstances, and of all foods, diagnostic and therapeutic devices and cosmetics. That this is the true purpose of the provision set forth seems clear from the rule laid down by the act for determining whether advertisements generally are or are not false. The act says:

> In determining whether any advertisement is misleading, there shall be taken into account (among other things) not only representations made or suggested by statement, word, design, device, sound, or any combination thereof, *but also the extent to which the advertisement fails to reveal facts material in the light of such representations or material with respect to consequences which may result from the use of the commodity to which the advertisement relates under the conditions prescribed in said advertisement, or under such conditions as are customary or usual.*[3]

Apparently, the advertisements of drugs that are disseminated only among members of the medical profession are by the language of the act taken out of the general rule of interpretation of other advertisements. That rule makes the advertiser responsible not only for what he states in the advertisement but also for failure to reveal facts material in the light of his representations or material with respect to consequences which may result from the use of the commodity to which the advertisement relates under the conditions prescribed in the advertisement or under such conditions as are customary or usual. To bring an advertisement of a drug within the special rule of interpretation laid down for advertisements of drugs that are disseminated among the medical profession alone, it is necessary only that such material facts as the advertiser sees fit to state are not false and that the advertisement furnishes the physician with a truthful disclosure of the formula, showing quantitatively each ingredient of the drug. Nothing in the act, however, requires an advertiser of a drug to protect himself by taking advantage of this special interpretation or to disclose his formulas. The omission of material facts by the advertiser of a drug to the medical profession, it will be noted, is not to be regarded as making the advertisement false within the meaning of the act, even though the facts omitted are material in the light of representations actually made or material with respect to the dangers inherent in the use of the drug advertised. Herein the rule of interpretation for the advertisement of drugs disseminated only to the medical profession differs from the rule of interpretation laid down for the advertisement of drugs under other circumstances and of all foods, devices and cosmetics.

The most that can be said for this provision of the act seems to be that if a published formula is to afford any protection whatever to the advertiser it must be truthful and must disclose the quantity of each ingredient of the drug advertised. Such disclosure does not seem to be limited to the disclosure of active or potent drugs, but excipients, solvents, flavors, colors and preservatives must be quantitatively disclosed along with the other ingredients. If there is to be any relaxation in this requirement it must come by administrative favor or judicial decision and not from the plain words of the act.

1. Public No. 447, Seventy-Fifth Congress.
2. Public No. 447, Seventy-Fifth Congress, section 4.
3. Public No. 447, Seventy-Fifth Congress, section 4.

Current Comment

SELENIUM IN INDUSTRY

The primary purpose of a recent study of selenium reported by Dudley[1] is to point out those industries in which unrecognized hazards may exist as the result of the processing of selenium-bearing materials. He also describes the methods developed for the determination of selenium in the air as dust or vapor, and a satisfactory method of urine examination. That this study is by no means premature is evidenced by the increase in the domestic consumption of selenium from approximately 57,000 pounds in 1921 to 412,000 pounds in 1935. Selenium is now widely employed in industry and includes such processes as glass decolorization, plastics, rubber "accelerators," fire-proofing of electric cable, photoelectric apparatus, glass, paint and ink pigments and chemicals. The excretion of selenium in the urine is considered conclusive evidence that workers are absorbing selenium, but more clinical and experimental laboratory work is necessary to establish a differential diagnosis based on the quantity of selenium excreted. Dudley discusses a modification of the previously reported technic of urine examination for selenium so that amounts as low as 0.01 mg. can be determined. Only by an environmental survey, he states, with sampling of workroom atmosphere for selenium contamination, can there be any authentic evaluation of the occupational hazards inherent in any of the industries or processes. Such methods of

1. Dudley, H. C.: Selenium as a Potential Industrial Hazard, Pub. Health Rep. **53**: 281 (Feb. 25) 1938.

analysis have been developed so that minute amounts of selenium may be determined in nearly any form or combination. The method consists of a sampling arrangement for absorbing gases or vapors with the ultimate recovery of selenium from a soda lime tube by distillation with hydrobromic acid. The selenium is precipitated and weighed or estimated colorimetrically. The extent of hazard in industries utilizing selenium is related primarily to the type of process. Fumes, vapors or liquids may result in definite dangers by the absorption of organic selenium compounds. Although skin absorption has not been studied experimentally, it has been shown that burns from hot acids containing selenium as the bromide result in the appearance of selenium in the urine within two days. An important corollary is that the normal human urine contains no distinguishable quantities of selenium. These considerations, Dudley believes, clearly show that selenium presents a potential industrial hazard and that adoption of control measures would be advisable in order to protect workers from injury resulting from absorption of seleniferous compounds.

THE SELECTION OF INTERNS FOR MUNICIPAL HOSPITALS

When it was proposed recently that interns for the New York City hospitals be selected by the Municipal Civil Service Commission and that the internship as a classified civil service position should carry with it a salary of approximately $100 per month, the suggestions failed to receive the endorsement of Dr. S. S. Goldwater, Commissioner of Hospitals. The proposals were, moreover, vigorously opposed by the medical schools and private hospitals of the city. Now the New York Academy of Medicine makes available the report of a special subcommittee which has investigated this matter. The committee recommends that the rules governing the selection of interns should be uniform for all municipal hospitals except the university services; that all applicants for internships in the municipal hospitals be required to write a single examination, the identity of the candidates being unknown to the examiners who grade the papers; that medical school records and letters of recommendation be also considered, and finally that those candidates who have passed the preliminary written examination should be eligible for an oral and practical test which should be held at each hospital. The committee further recommends that the final selection of interns rest wholly in the hands of the medical boards of the several hospitals, 30 per cent being allowed for scholastic standing and character record, 30 per cent for the written examination and 40 per cent for the oral and practical examination. The situation in New York City is not unique, for similar proposals have been made in other large cities. The recommendations of the special committee of the New York Academy of Medicine offer a practical solution which deserves the consideration of the medical profession in all communities where similar problems arise.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

State Medical Election.—Dr. Seale Harris Sr., Birmingham, was elected president of the Medical Association of the State of Alabama at its annual meeting in Mobile April 21, succeeding Dr. Edward S. Sledge, Mobile. Dr. Roscoe C. Stewart, Sylacauga, was chosen vice president for the Northeastern division and Dr. Douglas L. Cannon, Montgomery, was reelected secretary. Montgomery was designated as the place for the next meeting, April 18-20, 1939.

ARKANSAS

Course in Pediatrics.—Lectures and clinics constitute a graduate course in pediatrics now being given throughout the state under the auspices of the Children's Bureau, U. S. Department of Labor, the Arkansas Medical Society and the Arkansas State Board of Health. Dr. Jean Valjean Cooke, associate professor of pediatrics, Washington University School of Medicine, St. Louis, the lecturer, opened the weekly sessions in Texarkana May 16, Camden May 16, Pine Bluff May 17, Forrest City May 18, Conway May 19 and Fort Smith May 20. Six meetings will be held in each series.

CALIFORNIA

Society News.—The Alameda County Medical Association, Oakland, was addressed April 18 by Drs. Leonard B. Barnard on "Newer Concepts in the Treatment of Osteomyelitis"; Oscar O. T. McAllister, "Manchester Operation for Uterine Prolapse"; Paul C. Samson, "Muscle Graft in Coronary Sclerosis," and Harry N. Akesson, "Gastroscopy as a Diagnostic Procedure."

Graduate Conferences.—A series of graduate conferences were recently held in Southern California under the auspices of the California Medical Association. One day sessions were held for the Riverside, Orange, Imperial and San Bernardino county medical societies, while a two day program was offered before the Santa Barbara County Medical Society. At the meeting of the San Bernardino society April 7 the following spoke:

Dr. Robert W. Langley, Los Angeles, The Decompensated Heart.
Dr. Robert W. Wilcox, Long Beach, Traumatic Surgery.
Dr. Frank W. Otto, Los Angeles, Colitis.
Dr. Orville N. Meland, Los Angeles, Malignancy.

GEORGIA

University Clinic Week.—Emory University School of Medicine will open a four day clinical session at Grady Hospital, Atlanta, May 31-June 3. Emory Alumni Day will be observed June 4. In addition to the clinics, the following will speak, among others:

Dr. Joseph H. Boland, Management of Compound Fractures.
Dr. Russell H. Oppenheimer, Home and Office Treatment of Heart Failure.
Dr. Emmett D. Colvin, Chronic Nephritis as a Complication of Pregnancy.
Dr. Max Cutler, Chicago, Recent Trends in the Radiation Treatment of Cancer.
Dr. William Carter Smith, Intravenous Use of Aminophylline in the Treatment of Certain Types of Heart Diseases and Bronchial Asthma.

Dr. William A. Selman will be toastmaster at the annual banquet and Dr. Oscar L. Miller, Charlotte, N. C., the speaker.

ILLINOIS

Personal.—Dr. Brockway D. Roberts, Wayland, Iowa, has been appointed professor of hygiene and director of student health at Knox College, Galesburg. Dr. Roberts graduated at the University of Illinois College of Medicine, Chicago, in 1935.

State Medical Election.—Dr. James H. Hutton, Chicago, was chosen president-elect of the Illinois State Medical Society at its annual meeting in Springfield May 19 and Dr. Samuel E. Munson, Springfield, was inducted into the presidency. Drs. Harry Otten, Springfield, and Clarence A. Earle, Des Plaines, were elected vice presidents and Drs. A. J. Markley, Garden Prairie, and Harold M. Camp, Monmouth, were reelected treasurer and secretary respectively.

Society News.—The Stephenson County Medical Society was addressed April 21 by Dr. John W. Ferrin, Chicago, on surgery of the prostate.——The Rock Island County Medical Society was addressed in Moline April 12 by Drs. Channing W. Barrett, Chicago, on "Preservation and Restoration of the Pelvic Floor" and Dr. George D. Hauberg, Moline, "Management of the Diabetic Patient."——The St. Clair County Medical Society was addressed in East St. Louis May 5 by Dr. William J. Dieckmann, Chicago, on "Abnormal Labor."——At a meeting of the Madison County Medical Society May 6 in Madison, Dr. Robinson Bosworth, East St. Louis, discussed "The Findings of Minimal Tuberculosis."——Dr. William R. Cubbins, Chicago, discussed "Fractures of the Hip" before the Sangamon County Medical Society in Springfield May 5.

Chicago

Appointments at University of Chicago.—Wilton M. Krogman, Ph.D., associate professor of physical anthropology and anatomy, Western Reserve University School of Medicine, Cleveland, has accepted a similar appointment at the University of Chicago, effective in September. According to the announcement Dr. Krogman will have the opportunity of developing a laboratory of physical anthropology at the university. A native of Oak Park, Ill., Dr. Krogman is secretary for the United States of the International Congress of Anthropology and Ethnology. He was field director of the archeological survey of Illinois for the University of Chicago during the summers of 1927 to 1930.——James Franck, Ph.D., since 1935 professor of physics at Johns Hopkins University, Baltimore, has been appointed professor of physical chemistry at the university, effective October 1. According to the New York *Times*, the appointment was made to focus fundamental studies of physical and chemical aspects of life processes basic to the study of disease, which the university has been conducting for some years. The primary objective of this cooperative research is to determine the normal processes of cell growth. Born in Hamburg fifty-five years ago, Dr. Franck received his degree of doctor of philosophy at the University of Berlin. He was awarded the Nobel prize in physics in 1925.

KANSAS

"Cancer Specialist" Enjoined from Practicing Medicine.—The Supreme Court of Kansas, May 7, found for the plaintiff in upholding the decision of the Wilson County trial court in the case of *State* v. *W. W. Cooper*, it is reported. This was an action in quo warranto brought to prevent Cooper, an unlicensed "cancer specialist" of Altoona, from practicing medicine and surgery in the state. In 1937, under an injunction law, passed through the efforts of the Kansas Medical Society, Cooper had been enjoined from practicing the healing art. He was said to be treating cancer, using a zinc chloride paste. A verdict in favor of the state was appealed by Cooper direct to the supreme court and the recent decision is the first of that court on the injunction law.

KENTUCKY

Health Units Consolidated.—The health units of Lexington and Fayette County have been consolidated into a single department under the direction of Dr. Charles D. Cawood, the present health officer of the county. Dr. Charles M. Moore recently resigned as city health officer.

Celebrations of Years of Practice.—Dr. James O. Carson, Bowling Green, entertained the Warren County Medical Society at a dinner recently, celebrating his completion of sixty years of medical practice. Dr. Carson is 82 years old.——Dr. John E. Wilson, Falmouth, celebrated the completion of fifty years of practice with a dinner, March 8, attended by physicians with whom he has been associated and other friends. Dr. Wilson was mayor of Falmouth for many years.

Society News.—Physicians of Woodford County recently met in Versailles and revived the Woodford County Medical Society, which had been inactive for several years. Dr. Charles F. Voigt, Midway, was elected president, and Dr. George H. Gregory, Versailles, secretary.——Louis A. Julianelle, Ph.D., St. Louis, addressed the Madison County Medical Society, Richmond, March 17, on "The Clinical and General Aspects of Inclusion Blenorrhea."——Drs. Franklin Jelsma and Rettig A. Griswold, Louisville, addressed the Tri-County Medical Association in Lebanon March 31 on "Head Injuries" and "Treatment of Nonunited Fractures" respectively.——Dr. Thomas A. Griffith, Mount Vernon, addressed the Rockcastle County Medical Society, Mount Vernon, April 1 on pulmonary tuberculosis.——Dr. Emil Novak, Baltimore, addressed the Jefferson County Medical Society, Louisville, April 4, on "Modern Conception of Organotherapy."——Dr. Baldwin H. E. W. Lucke, Philadelphia, addressed the Society of Physicians and Surgeons, Louisville, April 21, on "The Modern Concept of Bright's Disease."

MARYLAND

Conference on Mental Health.—At a conference on mental health at the Medical and Chirurgical Faculty Building, Baltimore, April 7-8, under the auspices of the Mental Hygiene Society of Maryland, the speakers included:

Dr. Frederick H. Allen, director of the Child Guidance Clinic of Philadelphia, What Can I Do to Promote Better Mental Health of My Children?

Burton Fowler, headmaster of Tower Hill School, Wilmington, Del., Means of Attaining Better Health for Students.

Harrison S. Elliott, B. D., professor of practical theology, Union Theological Seminary, New York, What Can I Do to Promote the Better Mental Health of My Parishioners?

Elton Mayo, M.A., professor of industrial research, Graduate School of Business Administration, Harvard University, Cambridge, Mass., How Can Employers Promote Better Mental Health for Their Employees?

Miss Grace Marcus, case work consultant of the Charity Organization Society of New York City, Promotion of Better Health for Social Workers' Clients.

MASSACHUSETTS

Personal.—Russell L. Carpenter, Ph.D., assistant professor of anatomy, Columbia University College of Physicians and Surgeons, New York, has been appointed professor of zoology at Tufts College, Boston, succeeding Herbert V. Neal, Ph.D.——Dr. Raymond D. Tompkins, clinical director at the Veterans Administration Facility, Rutland Heights, has been appointed to a similar position at the facility in Mountain Home, Tenn.

Society News.—Dr. William B. Snow, New York, discussed induced fever as a therapeutic agent before the New England Society of Physical Medicine in Arlington Heights April 20.——The Worcester District Medical Society was addressed April 13 by Drs. David G. Ljungberg and Joel M. Melick, among others, on "Duodenal Diverticulum" and "Successful Termination of Pregnancy Following Double Sympathectomy" respectively.——W. Frank Walker, Dr.P.H., director of health studies, The Commonwealth Fund, New York, discussed "Changing Standards in Rural Health Work" before the Massachusetts Institute of Technology, Boston, April 15. This was the tenth Delta Omega Lecture.

MICHIGAN

Alumni Reunion.—The forty-ninth annual reunion and the Detroit Clinics of the Alumni Association of Wayne University College of Medicine will be held June 15-16. A program combining preclinical and clinical material has been arranged to cover the needs of the general practitioner and the specialist. Thursday will be given over to the commencement program of the school of medicine, a boat ride and the reunions of classes.

Personal.—Joel B. Peterson, Ph.D., formerly on the staff of the Chemical Laboratory of the American Medical Association, Chicago, was recently appointed director of chemical research with Frederic Stearns & Company, Detroit.——George P. Bugbee, assistant director, University of Michigan Hospitals, Ann Arbor, has been appointed administrator of the Cleveland City Hospital, effective June 15. He succeeds James A. Hamilton, who will become superintendent of the New Haven Hospital, New Haven, Conn.

Neuroanatomic Conference.—The laboratory of comparative neurology, University of Michigan Medical School, Ann Arbor, sponsored a neuroanatomic conference April 18. Visiting speakers on the program were Charles Judson Herrick, Sc.D., emeritus professor of neurology, University of Chicago, who spoke on "The Cortex in Relation to Learning"; Drs. Stephen W. Ranson, director, Institute of Neurology, Northwestern University Medical School, "Somnolence Caused by Hypothalamic Lesions in the Monkey," and Dr. Elisha S. Gurdjian, Detroit, "Certain Aspects of Spinal Fluid Pressure Changes."

Society News.—Dr. Albert C. Furstenberg, Ann Arbor, discussed "Clinical Significance of Acute Infections of the Mouth and Throat" before the Ingham County Medical Society in Lansing March 15.——Dr. Hugo A. Freund, Detroit, discussed "Diseases of the Peripheral Blood Vessels" before the Muskegon County Medical Society in Muskegon April 22.——Dr. Raymond B. Allen, dean, Wayne University College of Medicine, Detroit, was the toastmaster at the annual banquet of the Phi Beta Pi Medical Fraternity at the Fort Shelby Hotel, Detroit, April 30. Dr. Clarence E. Umphrey presented a paper entitled "Medicine Branches Out."——Dr. Robert C. Moehlig, Detroit, addressed the Jackson County Medical

Society, Jackson, March 15, on endocrine disturbances in general practice.——At a meeting of the Eaton County Medical Society in Charlotte, March 17, Dr. Willard Van Hazel, Chicago, spoke on "Empyema and Surgical Conditions of the Chest."——Dr. Charles Leslie Mitchell, Detroit, discussed "Low Back Pain" before the Calhoun County Medical Society, Battle Creek, May 3.

MISSOURI

Annual Clinical Conference.—The annual graduate course and clinical conference of the St. Louis Clinics was held May 23-28. Medical, dental and surgical subjects were considered. The material was not arranged into courses but the subject matter was selected with special reference to the requirements of the general practitioner. Members of the medical department officers of the U. S. Army and Navy cooperated in the conference, which was presented solely by St. Louis physicians.

Dr. Casey Goes to Louisiana.—Dr. Albert Casey, associate of pathology and chairman of the department, St. Louis University School of Medicine, St. Louis, has been appointed assistant professor in the department of pathology and bacteriology at Louisiana State University School of Medicine, New Orleans. Dr. Casey has served on the staff of the Rockefeller Institute for Medical Research and as associate professor of pathology at the University of Virginia Department of Medicine. Since 1936 he has been on the staff of St. Louis University, from which he graduated in 1927.

NEBRASKA

State Medical Election.—Dr. Arthur L. Miller, Kimball, was named president-elect of the Nebraska State Medical Association at its annual meeting in Lincoln April 28, and Dr. Homer Davis, Genoa, was installed as president. The next annual session will be held in Grand Island.

Society News.—A symposium on arthritis was presented at a meeting of the Lancaster County Medical Society, Lincoln, April 5 by Drs. Miles J. Breuer and Frederick F. Teal Jr.——Drs. R. L. Traynor and William H. Schmitz, Omaha, addressed the Madison Six County Medical Society in Norfolk April 19 on diseases of the pericardium, and prostatism.

Fifty Years of Practice.—The Richardson County Medical Society recently gave a dinner in honor of the sixtieth wedding anniversary of Dr. and Mrs. John A. Waggener, Humboldt. Dr. Waggener has practiced medicine for sixty-two years.——Drs. C. A. Bradley and Clifford P. Fall, Beatrice, recently received medals from the Gage County Medical Society in honor of their long years of practice. Dr. Bradley has practiced fifty-two years and Dr. Fall fifty years.

NEW YORK

Syracuse Alumni Reunion.—Alumni of the Syracuse University School of Medicine will hold their annual reunion June 6-7 at the school. The following program is announced for the scientific sessions:

Dr. Russell L. Cecil, New York, Treatment of Pneumonia.
Dr. Frank L. Jennings, Oak Terrace, Minn., Pneumothorax in the Treatment of Pulmonary Tuberculosis.
Dr. John H. Stokes, Philadelphia, Treatment of Syphilis.
Dr. Harold E. B. Pardee, New York, Treatment of Heart Disease During Pregnancy and Labor.
Dr. John J. Corbett, Detroit, Rectal Fistula.
Dr. Charles D. Squires, Binghamton, Diagnosis and Treatment of Acute Surgical Emergencies.

There will be an exhibit of physicians' hobbies and a dinner at the Hotel Onondaga.

New York City

Diabetes Association Incorporated.—Announcement was made May 1 of the incorporation of the New York Diabetes Association. Formerly an affiliate of the New York Tuberculosis and Health Association, the new corporation has separate offices at 22 East Fortieth Street. This action is said to mark the opening of a renewed campaign to aid 75,000 diabetic patients in the city; 2,500 persons died from diabetes in the city last year.

Report of the Hospital Commissioner.—Dr. Sigismund S. Goldwater, commissioner of hospitals, transmitted to the mayor April 28 the annual report on thirty institutions under his jurisdiction. In 1937 the city cared for 266,682 patients in the city hospitals and paid for the care of an additional 103,000 in private hospitals and homes for the aged and infirm. The hospitals are staffed by 4,406 visiting physicians who gave their time and by 1,669 paid physicians, half of whom were interns in training. In addition there were 7,844 nurses and attendants. There were more than 43,000 major operations performed, and 16,306 babies were born in the hospitals. Total expenditures of the department were $24,331,374. The average daily per capita cost for hospitalized patients was $3.58, for outpatients 37 cents. Both are larger than the figures for the previous year because of improved service, the eight hour day and increased cost of commodities, the report said. Sums collected from city patients amounted to $844,247, contributions to $623,877.

Society News.—Speakers at the stated meeting of the New York Academy of Medicine recently were Drs. Edwards A. Park, Baltimore, on "Recognition of Deficiencies in the First Four Vitamins and Measures for Prevention"; John G. FitzGerald, Toronto, "Specific Prevention of Diphtheria—Further Observations and Inquiries," and James P. Leake, U. S. Public Health Service, Washington, D. C., "Variations in Incidence in Infectious Diseases." At this meeting the academy's gold medal was presented to Dr. Bela Schick (THE JOURNAL, March 19, p. 906).——Drs. Bernard Seligman and George B. Dorff addressed the New York Endocrinological Society March 23 on "Hirsutism: Etiology and Treatment" and "Observations on Treatment of Intra-Abdominal Cryptorchidism with Anterior Pituitary-like Hormones" respectively.——Drs. Henry H. Kessler, Newark, N. J., and Joseph J. Eller, among others, addressed the Society of Plastic and Reconstructive Surgery March 24 on "Cineplastic Surgery and Prosthesis" and "Cosmetic Results in the Treatment of Skin Tumors" respectively.——The class of 1898 of Bellevue Hospital Medical College held its fortieth anniversary dinner at the Hotel Croydon May 26.

OHIO

Dr. Pickering Lectures.—Dr. George W. Pickering, assistant in the department of clinical research and lecturer in cardiovascular pathology, University College Hospital, London, England, gave the Frank E. Bunts Lecture at the Cleveland Clinic May 5 on "The Problem of Human Hypertension." Dr. Pickering also delivered the forty-third Hanna lecture at Western Reserve University School of Medicine May 6 on "Experimental Studies on Headache."

PENNSYLVANIA

District and County Society Meeting.—The annual meeting of the Tenth Councilor District Medical Society (Allegheny, Beaver, Lawrence, Westmoreland counties), May 12, was in conjunction with the annual graduate program of the Beaver County Medical Society in Beaver Falls. The survey of the American Medical Association on local medical service needs was the theme of the district society. The scientific program included the following speakers:

Dr. George J. Kastlin, Pittsburgh, Hodgkin's Disease.
Dr. William H. Guy, Pittsburgh, Management of Malignant Glands of the Neck.
Dr. Russell B. Bailey, Wheeling, W. Va., Collapse Therapy.
Dr. Arthur J. Skeel, Cleveland, Uterine Hemorrhage.
Dr. Walter C. Alvarez, Rochester, Minn., Hints in Gastrointestinal Disorders.
Dr. William Wayne Babcock, Philadelphia, Practical Points in General and Minor Surgery.

Dr. Thomas Parran, Washington, D. C., surgeon general, U. S. Public Health Service, addressed the afternoon public meeting on "Syphilis Can Be Stamped Out." He, with Dr. Alvarez, and Drs. Frederick J. Bishop, Scranton, and David W. Thomas, Lock Haven, president and president-elect, respectively, state medical society, addressed the banquet in the evening.

Philadelphia

Medical College News.—Dr. Anton J. Carlson, Chicago, delivered the annual Alpha Omega Alpha Lecture of the Woman's Medical College of Pennsylvania March 29 on "Government Medicine and Public Health." Dr. Arvid Lindau, professor of general pathology and bacteriology at the University of Lund, Sweden, lectured at the college March 28 on "Pathogenesis of Peptic Ulcer."

Society News.—The Philadelphia County Medical Society held a special meeting May 3 in observance of National Child Health Week, with a symposium on "The Family Doctor and the Child." The speakers were Drs. William C. Hunsicker, director of public health; Ralph M. Tyson, John F. Sinclair, John P. Scott and James J. Waygood.——At a meeting of the Medical League April 25 the speakers were Drs. Ernest A. Spiegel on "The Mechanism of Pain"; John F. Huber, "Anatomical Factors in Palpation of the Dorsalis Pedis Artery" and Hugh Montgomery, "Peripheral Vascular Dis-

ease."——The annual meeting of the Philadelphia Heart Association was held April 27 with Dr. Robert L. Levy, New York, as the guest speaker on "The Diagnosis of Cardiac Diseases"; Dr. David Riesman reviewed the society's activities during the year.——Dr. Russell M. Wilder, Rochester, Minn., delivered the forty-first Mary Scott Newbold Lecture of the College of Physicians of Philadelphia May 5 on "Recent Clinical and Experimental Observations in Adrenal Insufficiency."

Pittsburgh

Dr. Whipple Gives Mellon Lecture. — Dr. George H. Whipple, dean and professor of pathology of the University of Rochester School of Medicine, Rochester, N. Y., delivered the twenty-first Mellon Lecture of the Society for Biological Research at University of Pittsburgh School of Medicine, May 18. He discussed "Protein Production and Exchange in the Body, Including Hemoglobin, Plasma Protein and Cell Protein."

TENNESSEE

Graduate Course and Military Symposium.—A two day graduate clinical conference offered in conjunction with a medical military symposium will be conducted at Vanderbilt University School of Medicine, Nashville, June 6-7. Reserve officers will receive "inactive duty" credit for attendance. Dr. and Mrs. G. Canby Robinson, Baltimore, will be guests of honor at a dinner concluding the sessions. Dr. Robinson was formerly dean of Vanderbilt.

VERMONT

Personal. — Dr. Charles S. Woodall, formerly assistant superintendent of the Walter E. Fernald State School, Waverley, Mass., has been appointed superintendent of the Brandon State School for the feebleminded at Brandon.

Millions Willed to Bennington Hospital.—The Henry W. Putnam Memorial Hospital, Bennington, is to receive $3,000,000 by the will of late Henry W. Putnam, New York wire and glass manufacturer, who died March 30. The hospital was founded by Mr. Putnam's father in 1912.

WISCONSIN

Executive Secretary Appointed.—Mr. James O. Kelly, Milwaukee, has been appointed executive secretary of the Medical Society of Milwaukee County, succeeding Mr. Theodore Wiprud, who has accepted a similar position with the Medical Society of the District of Columbia, Washington. During the last several years, Mr. Kelly has assisted the State Medical Society of Wisconsin on such projects as graduate clinics on infant and maternal welfare, district meetings and the annual meetings of the society. In 1936 he was appointed by the governor to conduct a survey of hospitals and physicians in Wisconsin to secure accurate information on the problems of hospitals and physicians in connection with automobile accidents. He is the son of Dr. and Mrs. Francis H. Kelly of Merrill.

Graduate Medical Education Programs.—Two types of graduate education programs are being offered throughout the state during May and June under the auspices of the council on scientific work and the committee on maternal and child welfare of the state medical society and the bureau of maternal and child health of the state board of health. A one day program, consisting of an afternoon and evening meeting, is scheduled for Stevens Point, Wausau, Marinette, Sheboygan, West Bend, Manitowoc, Wisconsin Dells, Fond du Lac, Waukesha and Racine. Dr. Paul Padget, Baltimore, will discuss syphilis, and another speaker, whose name is not given, will talk on obstetrics. In the afternoon Dr. Padget will be available to the county medical societies in the areas served for clinics. The bureau of maternal and child health will present courses on obstetrics and pediatrics in Baraboo Mondays, Richland Center Tuesdays, Viroqua Wednesdays, Lancaster Thursdays and Monroe Fridays. Lectures will be delivered one afternoon and evening each week for five weeks. The first two meetings will be devoted to prevention and treatment of toxemias of pregnancy, and infections and hemorrhages of pregnancy. The third session will deal with prematurity from both the obstetric and the pediatric aspect, while the fourth and fifth sessions will be devoted to pediatrics and will encompass the following topics: meningitis, acute and chronic abdominal conditions, the complications of respiratory infections, internal secretions in childhood, drugs commonly used in pediatric practice and pyuria.

GENERAL

Alumni Meeting.—The alumni of the University of Louisville will hold a banquet at the Clift Hotel, San Francisco, Wednesday evening June 15. Dr. R. C. Arnold, U. S. Marine Hospital, San Francisco, is in charge of reservations.

Courses for Teachers of Sight-Saving Classes. — The National Society for the Prevention of Blindness announces that courses for the training of teachers and supervisors of sight-saving classes will be offered at the summer sessions of the following institutions:

Tulane University, New Orleans, June 13 to July 23.
University of Cincinnati, June 20 to July 26.
University of Hawaii, Honolulu, June 27 to August 5.
University of Washington, Seattle, June 20 to July 20.
Wayne University, Detroit, June 27 to August 5.
State Teachers College, Buffalo, July 5 to August 12.
Teachers College, Columbia University, New York, July 6 to August 13.

Association for Research in Ophthalmology. — The annual meeting of the Association for Research in Ophthalmology will be held in San Francisco Tuesday June 14 at the Mark Hopkins Hotel. Among the speakers will be:

Drs. James H. Allen and Alson E. Braley, Iowa City, Experimental Studies of the Pathogenicity of Staphylococcus Toxin.
Dr. Hermann M. Burian, Hanover, N. H., Influence of the Central Nervous System on the Pigment Migration in the Retina of the Frog.
Drs. Conrad Berens, Daniel Murray Angevine, Loren P. Guy and Sidney Rothbard, New York, Eye Lesions in Experimental Lesions, with Special Reference to Arthritis.
Drs. William E. Borley and Maurice L. Tainter, San Francisco, Influence of Dinitrophenol on the Production of Experimental Cataracts by Lactose.

American Proctologic Society.—The thirty-ninth annual meeting of the American Proctologic Society will be held at the St. Francis Hotel, San Francisco, June 11-13, under the presidency of Dr. Harry Z. Hirshman, Philadelphia. Among the speakers will be:

Dr. Montague S. Woolf, San Francisco, Curability of Chronic Ulcerative Colitis.
Dr. Marion C. Pruitt, Atlanta, Ga., Questionable Proctologic Problems.
Dr. Newton D. Smith, Rochester, Minn., Perianal Pyoderma.
Dr. Martin S. Kleckner, Allentown, Pa., Importance of Low Spinal Anesthesia in Proctologic Operations.

A group of papers on prolapse will be presented by Drs. Rufus C. Alley, Lexington, Ky., Mark L. Emerson, Oakland, and Alfred John Murietta, Los Angeles, Calif.

Meeting of Ophthalmologists.—The seventy-fourth annual meeting of the American Ophthalmological Society will be held at the Mark Hopkins Hotel, San Francisco, June 9-11. The following, among others, will present papers:

Dr. William H. Crisp, Denver, Shall We Use Cycloplegics?
Dr. Edward Jackson, Denver, Subjective Study of Visual Aberrations.
Dr. Charles W. Tooker, St. Louis, Metastatic Septic Endophthalmitis with Ring Abscess of the Cornea—Case Report and Pathological Anatomy.
Dr. Edwin M. Neher, Salt Lake City, A New Method for Transplanting Pterygium.
Dr. Arthur J. Bedell, Albany, N. Y., Traumatic Retinal Angiopathy.
Dr. Frederick T. Tooke, Montreal, Canada, A Case of Aleukemic Lymphosis Involving the Upper Lids, with Pathological Findings.
Dr. Trygve Gundersen, Boston, Results of Autotransplantation of Cornea Into the Anterior Chamber: Their Significance Regarding Corneal Nutrition.

Association for Study of Allergy.—The sixteenth annual meeting of the Association for the Study of Allergy will be held at the Hotel Empire, San Francisco, June 10-11. Among the speakers will be:

Dr. Orville H. Brown, Phoenix, Ariz., Practical Bacterial Vaccines for Each Case.
Drs. Robert W. Lamson, Los Angeles, and Harry L. Huber, Chicago, Long Continued Hypodermic Use of Large Amounts of Epinephrine.
Dr. Norman W. Clein, Seattle, Allergy in Infants: The First Allergic Manifestations.
Dr. Orval R. Withers, Kansas City, Mo., Food Allergens: Atopic Reagins and the Botanical Classification of Foods.
Dr. Morris Murray Peshkin, New York, Sensitization to Tobacco in Allergic and Nonallergic Children with Passive Transfer Studies.

There will be a round table luncheon Saturday and the annual dinner will be held Saturday evening.

Meeting of Clinical Pathologists. — The seventeenth annual meeting and fifth seminar of the American Society of Clinical Pathologists will be held at the Palace Hotel, San Francisco, June 9-11. The following will speak among others:

Drs. Alfred S. Giordano, Agatha M. Wilhelm and Mildred C. Prestrud, South Bend, Ind., The Serum Phosphatase in the Differential Diagnosis of Obstructive Jaundice.
Dr. Benjamin S. Kline and Mrs. D. Lloyd, Cleveland, Rapid Preparation of Serum for the Slide Tests for Syphilis.
Dr. Thomas Addis and Eloise Jameson, Ph.D., San Francisco, The Significance of Albumin-Globulin Ratios.

Dr. William Dock, professor of pathology, Stanford University School of Medicine, San Francisco, will address the annual banquet Saturday evening on "Ebb and Flow of Theories

About Pernicious Anemia." Dr. Carl W. Maynard, Pueblo, will deliver the presidential address on "Clinical Pathology Today."

American Heart Association.—The fourteenth scientific sessions of the American Heart Association will be held at the Sir Francis Drake Hotel, San Francisco, June 10-11. Dr. William J. Kerr, San Francisco, will deliver the presidential address on "Relief of Pain in Angina Pectoris Through Improved Filling of the Heart." Dr. Carl J. Wiggers, Cleveland, will give the annual address on "The Dynamics of Hypertension" and Dr. Eliot R. Clark, Philadelphia, the George Brown Memorial Lecture on "Certain Aspects of the Behavior of Peripheral Blood Vessels as Observed Microscopically in the Living Mammal." Other speakers will include:

Dr. Wilhelm Dressler, Vienna, Austria, Dehydration Through Glycosuria, Experiments with Phlorhizin as a Diuretic.
Dr. Eric Ogden and Nathan W. Shock, Ph.D., Berkeley, Studies on Blood Pressure.
Dr. Irvine H. Page, Oscar M. Helmer, Ph.D., and Dr. Kenneth G. Kohlstaedt, Indianapolis, The Isolation of Nicotine from Human Urine.

Examination in Pediatrics.—The American Board of Pediatrics announces the following dates for future examinations: Detroit, October 26 (Wednesday), preceding the meeting of Region III of the American Academy of Pediatrics; Rochester, N. Y., November 13 (Sunday), following the meeting of Region I of the American academy; Oklahoma City, November 15 (Tuesday), preceding the joint meeting of Region II of the academy with the Southern Medical Association. The board announces that all applications must be in the office of the secretary, Dr. Charles A. Aldrich, Winnetka, Ill., at least four months before an examination can be given. In view of the fact that the vast majority of those taking a second examination fail, the board ruled at its annual meeting in New York that applicants who have failed at one examination must wait two years before coming before the board for reexamination and must show evidence of further study or training in pediatrics to justify reexamination.

American Gynecological Society.—The sixty-third annual meeting of the American Gynecological Society will be held at the Grove Park Inn, Asheville, N. C., May 30-June 1, under the presidency of Dr. Noble Sproat Heaney, Chicago. The speakers will include:

Dr. Albert H. Aldridge, New York, End Results of Treatment of 388 Cases of Placenta Praevia at the Woman's Hospital and Sloane Hospital for Women.
Dr. George Van S. Smith, Brookline, Mass., Observations Concerning the Metabolism of Estrogens in Women.
Dr. Karl M. Wilson, Rochester, N. Y., Results of the Treatment of Gonorrhea in Women by Sulfanilamide.
Dr. Thaddeus L. Montgomery, Philadelphia, Problems in the Etiology and Prevention of Stillbirth.
Dr. Virgil S. Counseller, Rochester, Minn., Endometriosis: A Clinical and Surgical Review.
Dr. George L. Streeter, Baltimore, Advances in Our Knowledge of the Early Primate Embryo.
Dr. John Rock, Boston, Human Ovulation Electric Potentials.
Dr. Carl R. Wegner, St. Louis, Pernicious Vomiting of Pregnancy.
Dr. William C. Danforth, Evanston, Ill., The Place of Vaginal Hysterectomy in Present Day Gynecology.

Tours to San Francisco's Treasure Island.—Construction work on the Golden Gate International Exposition, which will open next year, has already reached the stage where it offers great interest to the public and each succeeding week will open new places of interest. The public and especially persons attending the annual session of the American Medical Association are invited to visit "Treasure Island." They may do so by taking the special Treasure Island ferries, which leave the Ferry Building every two hours from 7:30 a. m. to 3:30 p. m. week days and on Sunday every hour from 10 a. m. to 3 p. m. The round trip fare is 25 cents; there is also a 25 cent admission charge to Treasure Island. The tour about the island takes a little more than an hour. There are facilities on the island at present for dinner from $1 and up, and for luncheons from 45 cents up. Treasure Island, in San Francisco Bay, is about a mile square. It is said to be the largest man made island. The architecture of the exposition buildings combines the elements of oriental and occidental design. When the fair is completed, one million flowers will be woven into a magnificent "magic carpet" on the west end of the island. Thirty-five foreign nations and three fourths of the states in the United States are planning to participate in this world's fair. Information can be obtained by addressing the Golden Gate International Exposition, 585 Bush Street, San Francisco.

National Tuberculosis Meeting.—The thirty-fourth annual meeting of the National Tuberculosis Association will be held in Los Angeles June 20-23 at the Biltmore Hotel. The preliminary program announced a symposium on tuberculosis in industry, in which the speakers will be Drs. Anthony J. Lanza, New York; William A. Sawyer, Rochester, N. Y.; Clarence D. Selby, Detroit, and Mr. Donald E. Cummings, Denver. Another symposium will be on "Chronic Nontuberculous Infections of the Lung," with the following speakers: Drs. Robert G. Bloch, Chicago; Benjamin S. Kline, Cleveland; Jacob J. Singer, Los Angeles; Harold Brunn, San Francisco; Paul C. Samson, Oakland, and Ernest C. Dickson, San Francisco. Other speakers will include:

Dr. Carleton B. Peirce, Ann Arbor, Mich., Roentgenologic Anatomy of the Chest.
Dr. Charles Weiss, San Francisco, Cellular Proteinases in Inflammatory and Experimental Tuberculosis.
Dr. Sherwood Moore, St. Louis, Body Section Radiography.
Dr. Henry Stuart K. Willis, Northville, Mich., Treatment of Tuberculosis by Tuberculin Desensitization.
Dr. Howard W. Bosworth, Los Angeles, Follow-Up of Collapse Therapy Cases.

Other symposiums will be presented on rehabilitation of the tuberculous—a community problem; transience and tuberculosis; poverty and tuberculosis with particular reference to the economic and social significance of high death rates in certain groups, and tuberculosis in the general practice of medicine with particular emphasis on case finding. The American Sanatorium Association and the National Conference of Tuberculosis Secretaries will hold their meetings June 20.

Registration Under Harrison Narcotic Act and the Marihuana Tax Act.—On or before July 1, every physician registered under the Harrison Narcotic Act or under the Marihuana Tax Act or under both must reregister with the collector of internal revenue of each district in which he maintains an office or a place for the treatment of patients. Failure to reregister within the time allowed by law adds a penalty of 25 per cent to the annual tax payable at the time of registration and in addition makes the physician in default liable to a fine not exceeding $2,000, or to imprisonment for not exceeding five years, or to both. The Commissioner of Internal Revenue has been lenient in the past in enforcing the criminal penalties provided by the Harrison Narcotic Act for tardy registration but continued disregard on the part of some physicians of the requirement of that act with respect to reregistration, and failure to comply with the registration requirement of the recently enacted Marihuana Tax Act will inevitably lead to criminal prosecutions. In recent years the commissioner has given some negligent or recalcitrant physicians the choice between paying substantial sums by way of compromise in lieu of the penalties for their offenses or, as an alternative, accepting criminal prosecution with resultant publicity and liability to fines of indefinite amounts and possibly imprisonment. This was an act of grace on the part of the commissioner; he might have instituted criminal prosecutions without allowing the offending physicians any choice in the matter. If the course that the commissioner has adopted does not produce the desired promptness in registration, he will have no recourse other than criminal prosecution to attain that result.

Government Services

Vacancies for Senior Medical Interns

The U. S. Public Health Service announces a number of vacancies to occur about July 1 for second year medical interns. Any physician, not over 30 years of age, who has graduated from an accredited medical college and who has completed, or will shortly complete, one year's internship in an approved hospital is eligible to apply. No written examination is required. Only applicants who are interested in the service as a career should respond. Appointments are to be effective on or about July 1 to vacancies at marine hospitals and federal penal and correctional institutions. Candidates appointed for duty at marine hospitals will receive a gross pay of $1,800 each a year, from which a deduction of $690 annually will be made if quarters, subsistence and laundry are furnished. Candidates who are assigned to the federal penal and correctional institutions will receive $1,620 a year, from which about $240 annually will be deducted if similar accommodations are furnished. Quarters, subsistence and laundry will be furnished in kind in every instance in which such allowances are available. The quarters for an intern are designed for the use of the individual himself and cannot be shared by dependents. Additional information may be obtained by addressing the Surgeon General, U. S. Public Health Service, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 30, 1938.

The Control of Marriages

Some sensation has been caused by the forecast by Sir Farquhar Buzzard, regius professor of medicine in the University of Oxford, of state control of all marriages in the next twenty-five years as a necessary measure to preserve the quality of the race. He was speaking in a series of lectures organized by the British Medical Association as a contribution to the National Fitness Campaign. He said that the state interfered with the liberty of the criminal because he was harmful to the community. But the consequences of ill advised marriages were equally damaging and much further reaching. Under present conditions the subnormal had every encouragement to reproduce the subnormal, while the normal and the supernormal bore the burden and were tempted and even forced to limit reproduction. We were confronted not only with a declining birth rate but with a population in which the unfit would outnumber the fit.

He put forward four proposals to avert this danger: 1. An intensive study of human heredity in a limited area. 2. More general education of children in biology, with special reference to heredity. 3. Some form of statutory authority for marriage involving the investigation of the personal and family health of the parties. 4. Some form of economic encouragement toward raising a fit family.

The Causes of Exophthalmos

At the annual congress of the Ophthalmological Society a discussion on the differential diagnosis of the causes of exophthalmos was introduced by R. Foster Moore. He estimates proptosis by standing behind the patient and making him look a little upward and tilt the head backward until the summit of the cornea first appears in view in front of the eyebrow. Deep palpation of the orbital contents with the little finger enables the front edge of the orbital mass sometimes to be felt, revealing its consistency and position. Tenderness might suggest inflammatory origin. At times when the tumor could not be felt the orbital fat was pushed forward and could be made to slip between the skin and the orbital margin. On palpation proptosis might be found reducible if due, for instance, to cavernous nevus; or pulsation due to arteriovenous aneurysm might be detected. Limitation of movements is more likely to be general in inflammatory than in neoplastic conditions. The immobility in inflammation is probably due to a toxic effect on the muscles, but paralysis is sometimes due to involvement of a nerve, such as the sixth, in cavernous sinus thrombosis. The palsies in thyrotoxicosis seemed to be due to persistent changes in the muscles.

Inflammatory causes provided the largest group of cases in the absence of exophthalmic goiter. In this disease a retracted upper lid might give a false appearance of exophthalmos. Metastatic tumors in the orbit were rare but should be first excluded in all cases of unilateral proptosis in an adult. Hemorrhage into the orbital cavity was frequently due to trauma but might occur spontaneously in hemophilia and scurvy or from physical causes, as in whooping cough or during birth. Arteriovenous aneurysm was one of the rarer causes of proptosis.

Dr. W. Russell Brain discussed the neurologic and general medical causes. A general rise of intracranial pressure might cause slight exophthalmos, but a much greater degree was produced by the pressure of a tumor growing near the orbit. Meningioma and slowly growing extracerebral tumors were the most important. In such cases ptosis due to involvement of the third nerve or of the ocular sympathetic was common and helped to distinguish the exophthalmos from that of endocrine origin, which usually produced lid retraction. Intracranial aneurysms which were not syphilitic but due to a congenital defect in the muscular coat of the vessel might cause exophthalmos. Impaired venous return from the head, due to aortic aneurysm, intrathoracic neoplasm and even severe chronic emphysema, may cause exophthalmos, which might be associated with cyanosis and tortuosity of retinal veins. The syndrome of exophthalmic ophthalmoplegia had thrown light on the exophthalmos associated with goiter. It affected middle aged persons and males much more than did exophthalmic goiter. Progressive exophthalmos of one or both eyes was associated with external ophthalmoplegia, unilateral or bilateral. There was much edema of the lids and conjunctivae, which might protrude beyond the anterior border of the cornea. Hyperthyroidism was rarely severe and the condition might be progressive in patients with a subnormal basal metabolic rate after thyroidectomy. Recent experimental work on the thyrotropic hormone of the pituitary suggested that the exophthalmos might be due to overproduction of that hormone.

Bill to Regulate the Sale of Contraceptives

In the House of Commons leave was granted to introduce a bill to regulate the public display in shops of contraceptives and descriptive matter and to prohibit street trading in such articles. The member who introduced the bill referred to the widespread sale of contraceptives, particularly in populous areas. An inquiry showed that of 280 pharmacists only seven did not stock them. In addition a large number of shops were devoted to their sale, so as to become an offense to many who passed by. The bill dealt with the undue display of contraceptives and descriptive matter and sought to impose an age limit on persons to whom they might be sent.

The Presidency of the Royal College of Physicians

The office of president of the Royal College of Physicians has been held by Lord Dawson for the unusually long period of seven years, during which time he directed the activities of what was formerly considered simply an academic body into such practical directions as the promotion of research and postgraduate education. He has been succeeded by Dr. Robert Hutchison, consulting physician to the London Hospital and the Hospital for Sick Children, who is a well known clinical teacher and an authority on dietetics and pediatrics. His successful textbooks include the "Index of Treatment" (of which he is editor), "Clinical Methods," "Food and Dietetics" (which has reached an eighth edition), "Lectures on Diseases of Children" (which has reached a seventh edition), and "Elements of Medical Treatment" (third edition). In an age of faddists, in which the craze for novelty leads to the acceptance of much which is unsound, the new president is distinguished for his sturdy common sense. He is a Scot from the University of Edinburgh.

The International Congress of Psychotherapy

The tenth International Congress of Psychotherapy will be held at Oxford July 29-August 2 under the presidency of Prof. C. C. Jung. The International Medical Society of Psychotherapy, under whose auspices the congress is being held, has been in existence for fifteen years. Previous to 1937, when the congress was held at Copenhagen, the meetings took place in various German towns. This is the first meeting in an English-speaking country. The main subjects to be discussed are the psychology of the phases of life, psychotherapy and psychosomatic problems. The long contributions (forty-five minutes) will be in the form of read papers, but it is hoped that the shorter ones will be in the form of lectures based on notes. There will be ample time for discussion. Synopses of

the papers will be provided in the three languages of the congress, English, French and German. A small exhibition is being arranged to cover those sides of psychotherapeutic work which can be more conveniently demonstrated in graphic form. Physicians who have material which they think will be of special interest should communicate with the honorary secretary, Dr. E. B. Strauss, 81 Harley Street, London, W. 1. The registration fee is 17 shillings ($3.50), which should be sent to the business secretary, Mr. H. Gibbs-Smith, 106 Brompton Road, London, S.W. 3, preferably by May 15. Members, both men and women, will be accommodated in Balliol and Somerville colleges at a cost of $15, including all meals.

A Fatal Mistake

A mistake which resulted in the death of a peeress, aged 65, Lady Rankeillour, should be a warning to physicians never to order a powerful drug over the telephone. Her nurse rang up her physician, saying she had given her extra sleeping tablets and that she did not seem able to sleep. The nurse mentioned paraldehyde. She had not given it to a patient for sixteen years and did not know the dose. At the inquest she stated that she asked how she should give it and the physician telephoned to give a rectal injection of 6 ounces of paraldehyde in 8 ounces of paraffin. She wrote the message on the telephone block. When she told the pharmacist that she had to give 6 ounces as an injection he thought it was rather a large dose and that the maximum dose was 2 ounces. The injection was given and when the nurse found next morning that she could not rouse the patient she sent for the physician. In his evidence he stated that the dose of paraldehyde was determined by the weight of the patient—a drachm to the stone. In this case the patient weighed 10 stones (63.5 Kg.) and he ordered the nurse to give 6 drachms (22.5 cc.). It was a perfectly proper drug for a nurse to administer and he had not met one who did not know about it. A pathologist gave evidence that death was due to respiratory failure and was consistent with paraldehyde poisoning. The coroner recorded a verdict of "death by misadventure."

PARIS

(From Our Regular Correspondent)

April 30, 1938.

Attempt to Limit Prescription of Pharmaceutic Specialties

To check the indiscriminate prescription of so-termed pharmaceutic specialties for those covered by the social insurance law, the minister of labor has been obliged to limit the sums to be reimbursed to the insured when such "specialties" are prescribed for them. There are more than 10,000 of these special preparations in France and the traditional art of prescription writing is almost a dead issue. It cannot be denied that it is far easier to prescribe one of these "specialties" than to write a prescription. The patient is obliged to pay about 20 per cent more for the majority of these special preparations than a druggist would ask for an ordinary prescription with the same ingredients. For other "specialties" the patient here must pay far more than for the same drugs in the form of a prescription. The social insurance patient in the future will be reimbursed to the extent of 40 per cent for about 3,500 of 6,000 "specialties" but only 10 per cent for the remainder. Many of the pharmaceutic houses advertise in nonmedical journals and sing the praises of their special preparation over the radio, so that the socially insured have formed the habit of asking the attending physician to prescribe these unethically advertised preparations.

The profession here is also having its attention directed to another unethical mode of advertising employed by certain "specialty" makers. Every candidate for the medical degree in France must submit a thesis based on laboratory or clinical observations. The cost of printing the thesis is often quite a burden for impecunious students, so that it has become a habit for some "specialty" manufacturers to defray the cost of printing the thesis provided it is based on the use of their particular "specialty" and the records of its use made on the record sheets of well known clinics.

Proposal to Punish Fee Splitting and Advertising

A public hearing will take place shortly before one of the committees of the French senate on a bill introduced by a former minister of public health, Mr. Sellier. The object of the proposed law is to penalize not only physicians who divide the fees received from patients referred to them for an opinion or operation but to put a stop to rebates given by orthopedic apparatus makers and druggists to physicians who send their patients. The Federation of Medical Syndicates, which has more than 20,000 members and look after public relations for the entire medical profession here, passed resolutions in 1932 condemning fee splitting in any form. At the February 20 meeting of the federation, the statement was made that many physicians have refused to divide the fees received from patients with the practitioner who sent them but that the application of this principle was not as widespread as might be wished for.

Another objective of the proposed Sellier law is an attempt to prevent newspapers from accepting advertisements of treatments by quacks. The extent to which such claims by quacks of all description appear in journals here is beyond all imagination. The ethical standard of the lay press in this country, in this respect, is much below that of reputable newspapers in other countries. Advertising by quacks is such a lucrative source of income that the proposed Sellier law to penalize it will meet with a great deal of opposition.

The Hereditary Factor in Hypertension

At the April 12 meeting of the Académie de médecine of Paris a paper was read on "Recent Studies on the Relation of Heredity in Cases of Hypertension." The author was Dr. G. Richard, who practices at Royat, the French health resort which specializes in the treatment of cardiovascular disturbances. That heredity is an important factor in hypertension has been previously reported by Weitz, Barach, Janeway and others. In association with Etienne, Dr. Richard in 1930 cited their study of 1,150 cases of hypertension. In 637, or 55.4 per cent, the familial factor was the only one responsible for the condition. Even in two thirds, or 21.9 per cent, in whom chronic nephritis, the artificial menopause and syphilis stood out as etiologic factors, there was also a history indicating the influence of heredity. This makes a total of nearly 70 per cent in which the disease was a familial one. This relatively high incidence holds true for a total of 5,000 cases reported by various authors.

In the present paper Dr. Richard reports 1,746 additional cases of hypertension. In 153, or 8.7 per cent, there was an absence of such a condition on the paternal and maternal sides. In 937, or 53.6 per cent, however, either the father or the mother had hypertension. In twenty-six, or 1.5 per cent, the grandparents suffered from this condition. In 265, or 15.2 per cent, although it was impossible to find a distinct hereditary factor, hypertension existed either in the sisters or in the brothers of the patients in 247 cases. In 223, or 12.7 per cent, of these more recently observed 1,746 patients, other etiologic factors were found to exist.

There exists a striking similarity as regards the sequels of hypertension in different members of the same family. In the majority of cases, if the father or mother died as the result of a cerebral hemorrhage, this was the cause of death in the children. This observation held true for successive generations as well as for other sequels of hypertension, such as angina pectoris.

BERLIN

(From Our Regular Correspondent)

April 5, 1938.

Hereditary Diseases of the Visual Apparatus

One effect of the German eugenic legislation has been to bring into prominence all problems of heredity. Great interest therefore attaches to a recent discussion by Professor Dr. Gasteiger of Frankfort on the Main of hereditary disorders of the visual apparatus, published in *Forschungen und Fortschritte.* From a scientific point of view an eye is considered blind if the light perception is completely extinguished. In practice, however, one must recognize other concepts of the term blindness and, as the provisions of social legislation indicate, the more literal definition has had to be modified. For example, a traumatic injury to the eyes is considered as having caused blindness if the visual acuity has become so impaired that the person is unable to pursue his occupation and becomes dependent on others. The ophthalmologist, Professor Axenfeld has pronounced the dictum that "persons unable to earn their living because of defective vision are blind." According to medical experience, total disability is present if visual acuity has been reduced to around 1/25 normal and cannot be improved by glasses. This definition of blindness is recognized by the social insurance and by the courts which are called on to apply the laws for prevention of hereditarily defective progeny. Furthermore, in the evaluation of blindness not only the central vision but the state of the field of vision must be considered.

Bilateral congenital atrophy of the optic nerve may be adduced as an example of inherited visual defect; this disorder, according to Professor Leber, is transmitted as a recessive characteristic. Other types of congenital atrophy also are based on heredity. Since, however, in addition to the heritable forms there are a whole series of nonhereditary forms of optic atrophy, thorough investigation of the immediate family and the ascendency is necessary in each case before a diagnosis of an inherited condition is established.

The most important two hereditary diseases of the retina are retinitis pigmentosa and the modifications in the macula lutea associated with amaurotic family idiocy. Gray cataract is the chief congenital disorder of the anterior portion of the eye; this disease assumes many forms, and a many-sided differential diagnosis is necessary before the ultimate decision is reached. Then too there are the heritable changes in the cornea, such as megalocornea, microcornea and the nodular and reticular types of corneal degeneration. Also congenital defects of the uvea are recognized; albinism, for example. The author also mentions congenital motor disturbance such as ptosis and congenital nystagmus and, finally, color blindness. Red-green blindness and the rarer blue-yellow blindness are transmissible as recessive traits. Total color blindness, however, is usually related to nystagmus and high grade visual disturbances. Hereditary factors may also influence the pathogenesis of other anomalies: errors of refraction, myopia, hyperopia, astigmatism; but unless these defects are exceedingly severe they can usually be corrected by the wearing of glasses.

Protection of the Pregnant Workwoman

The 4,000 occupational groups of the German Workers' Front voted to introduce new regulations to become immediately effective for the protection of the pregnant workwoman. Accordingly the pregnant woman in industry now enjoys immunity from notice of dismissal for from eight to twelve weeks following delivery. After certification by a physician, the gravida may now discontinue work six weeks prior to confinement. If she so requests, the woman may be assigned to lighter tasks for from three to four months preceding confinement, but her regular wage must not be reduced. After she ceases work she receives the allowance customarily granted lying-in women, and any difference between that allowance and her regular wage is made good.

The Prevalence of Silicosis

In a recent article in the *Deutsche Bergwerkszeitung* it is stated that the average mortality from silicosis among miners is greater than one death a day. According to statistics for the years 1929-1936, accidental fatalities in the mining industry were reduced by one half during this period, whereas the death rate from silicosis constantly increased. The number of fatalities from silicosis in 1936 was 37 per cent greater than in the year 1929. Silicosis, therefore, constitutes a greater menace to the mine worker of today than the industrial accident.

BUENOS AIRES

(From Our Regular Correspondent)

April 15, 1938.

Transplantation of Parathyroids

Drs. Rojas and Manfredi reported to the Sociedad Argentina de Biología in November 1937 the results of experiments in which they transplanted parathyroids in dogs. The implantation of parathyroids prevented the development of parathyroid tetany and maintained calcium and the phosphates of the blood plasma within normal values. The graft takes well below the capsule of the kidney and also below the muscles. Ten hours after implantation, revascularization of the graft can be seen by microscopic study. The central zone of the graft undergoes degeneration but the peripheral portion does not. Regeneration of the graft begins within twenty days of the operation and it is complete in three or four months. After eight, thirteen and fifteen months the transplanted parathyroids were removed with consequent development, within a few days, of tetany and lowering of the calcium and phosphates of the plasma.

Secretion of Ischemic Kidney Causes Hypertension

Reference has been made to experiments by Houssay and Fasciolo on experimental arterial hypertension induced by compression of the renal artery according to the technic of Goldblatt. Implantation of the ischemic kidney of a hypertensive dog into the neck of a dog recently nephrectomized and treated with chloralose increases the arterial pressure of the receptive dog from 30 to 75 mm. of mercury within five to ten minutes. The blood pressure of receptive dogs does not increase if the transplanted kidney is normal, whether the structure was removed from a normal dog or from a dog in a state of hypertension.

Professors Houssay and Fasciolo recently reported to the Sociedad Argentina de Biología results of further work. Implantation of twenty ischemic kidneys of dogs in hypertension increased the arterial pressure of the receptive dogs in all cases but two. That of twenty-five normal kidneys induced hypertension in only two dogs.

Dr. Taquini verified the fact that ischemic kidneys in place secrete substances that cause permanent arterial hypertension. The constrictive action of the citrated plasma of the blood of the renal vein of hypertensive dogs is more intense than that of the blood plasma of the carotid artery or of the jugular, intestinal and splenic veins of the same dog. The experiments prove that the ischemic kidney secretes substances that cause vasoconstriction. Ultrafiltrates of plasma of the renal vein become inactive, either because the active substances cannot pass through the filter or because they are absorbed by the proteins. The hypertensive action of the ischemic kidney is independent of the action of the adrenals. Implantation of ischemic kidneys in dogs without adrenals causes hypertension. Normal kidneys have an action which is antagonistic to hypertension. Hypertension increases more rapidly and is more intense and persistent when the compression of the renal artery is done on dogs which have only one kidney than on those which have both kidneys. Implantation of ischemic kidneys of dogs

in hypertension in the neck of nephrectomized dogs induces hypertension which does not take place or is slight if the implantation is done in dogs which have both normal kidneys. The results of the experiments show that the ischemic kidney secretes a substance that causes hypertension. It secretes the substance without any intervention from the adrenals. The substance that causes hypertension is neutralized, destroyed or eliminated by normal kidneys.

Personals

Dr. Alejandro Ceballos has been appointed professor of clinical surgery at the Facultad de Medicina of Buenos Aires, to succeed the late Prof. Pedro Chutro.

Drs. Miguel Sussini and José Tobías have been appointed president of the national department of public health and director of public health and sanitation of Buenos Aires, respectively.

Drs. J. A. Taiana, A. Introzzi and Jose M. Fernández have been given scholarships. Dr. Taiana will study surgery at Brussels University. Dr. Introzzi will study at the Mayo Clinic, Rochester, Minn., under a scholarship from the Comisión Nacional de Cultura. Dr. Fernández will study the pathology of leprosy in Paris and São Paulo under a scholarship from the Asociación Argentina para el Progreso de las Ciencias.

Deaths

Dr. Luis Tamini, professor of orthopedic surgery of the Facultad de Medicina of Buenos Aires, died Jan. 17, aged 56.

Dr. Nicolás Lozano died March 3, aged 74. He was a member of the Academia Nacional de Medicina, president of the Comisión Nacional de Asilos y Hospitales regionales, former president of the Red Cross in Argentina and secretary of the National Department of Public Health.

ITALY

(From Our Regular Correspondent)

March 25, 1938.

The Shock Therapy of Schizophrenia

At the convention of Italian neuropsychiatrists at Milan, the discussion of shock therapy of schizophrenia was limited to the two methods based on the work of Meduna and of Sakel. The term "shock therapy" is applied to either. The Meduna method consists in the administration to schizophrenic patients of from 4 to 5 cc. of a 10 per cent solution of metrazol by intravenous injection; epileptoid convulsions can thus be induced. The Sakel method is based on the production of a series of hypoglycemic episodes by intramuscular injection of insulin in daily doses up to 200 international units. The topic was developed by Professors Corberi, Lugiato and Medea, all of Milan, Cerletti of Rome and Riquier of Pavia. Professor Corberi reviewed the favorable results achieved by means of insulin shock in about forty cases at the Milan psychiatric hospital. Corberi's associate, Professor Lugiato, elucidated the economic aspect of the question; he stated that although routine application of the Sakel method would require an augmented hospital personnel it would ultimately result in an annual saving to his institution of some 250,000 lire ($13,150), since a large number of schizophrenic patients would be discharged as cured.

Professor Cerletti, director of the Clinica Neuropsichiatrica di Roma, reported the following data from his experience: Of about thirty schizophrenic cases, both recent and chronic, which were treated by insulin shock, complete remission of symptoms and clinical cure took place in 42 per cent; amelioration satisfactory enough to permit return home was effected in 37 per cent and slight amelioration in 6 per cent. Experimental research has demonstrated that after repeated and profound insulin comas the brains of dogs undergo grave alterations, in part reversible and irreversible changes of a toxic character, in part changes more directly referable to disturbances of the circulation. The author emphasized the first group of alterations, which tend to be constant. He adduced evidence to show that insulin coma entails the destruction of a certain number of neurons. The more labile frontal neurons bear the brunt of whatever injury occurs. These particular neurons represent the latest cerebral formation to develop. It has been noted that in the human brain new neurons may form till the fortieth year. Accordingly there is nothing incongruous in the assumption that a large part of the psychic manifestations in schizophrenia correspond to modifications of functional, associative complexes of relatively recent origin and that therefore the mechanism of shock therapy is a sudden destruction of such complexes.

Professor Donaggio of Bologna expressed the opinion, based on histologic data, that insulin therapy induces histochemical alterations of the myelin.

Professor Mueller, director of the Psychiatric Hospital, Berne, reported the effects of insulin shock treatment on 495 schizophrenic patients at twenty-two different psychiatric institutions. In nearly 60 per cent of the more recent cases complete remissions occurred; about 40 per cent of all cases were considered cured. The mortality was about 1 per cent; recidivation was reported in less than 6.5 per cent.

Metrazol therapy, according to Meduna's method, also came in for ample discussion. The majority had experimented with this technic and declared themselves favorable to its use.

Bertolani described his experiments with convulsions induced by injections of ammonium chloride, with which he has elicited some favorable therapeutic results.

Rizzatti presented two schizophrenic patients who had been cured by the Moniz surgical treatment.

Research on Conditions Due to Low Temperatures

A center for research on the pathology and therapy of conditions due to the low temperatures of mountain regions has been established at Genoa. The activities concern research on thermal adaptation of man and animals to low temperatures, the pathology and treatment of lesions due to cold, particularly the use of short wave therapy, and the prophylaxis of such lesions, especially as the latter occur in the army and in connection with winter sports. Professor Sabatini, director of the new center, has obtained the collaboration of the army sanitary corps. Besides assigning a major of the medical corps to participate, the general staff of the army sanitary corps has ordered that soldiers severely enough affected with lesions due to cold to require hospitalization should be sent to the Military Hospital at Genoa, where special accommodations will be reserved.

Marriages

JAMES MURRAY ELLZEY JR., Chestnut Hill, Pa., to Miss Florence E. Haines of Frankford, April 8.

JOSEPH EDWARD GLADSTONE, Exmore, Va., to Miss Doretta Anne Roberts of Cape Charles, April 9.

ALBERT S. J. CLARKE, Clarendon, Ark., to Miss Ruth Shaw Smith of Nashville, Tenn., April 10.

WILLIAM BERNARD CARPENTER, Lovettsville, Va., to Miss Eilene Ward of Richmond, April 6.

JAMES LLOYD MIMS, Chester, S. C., to Miss Virginia Maynor of Winston-Salem, N. C., April 9.

RICHARD CAMPBELL MANSON to Miss Mary Kathryn Taylor, both of Richmond, Va., April 23.

CLARENCE MCNAIR WALLACE to Miss Ruth Allene Good, both of Hummelstown, Pa., April 1.

SYDNEY L. HARRIS, New Rochelle, N. Y., to Miss Natalie Crandall of New York in May.

WALTER SCOTT to Miss Mary Elizabeth Van Dyke, both of Sioux City, Iowa, March 17.

Deaths

Willson Orton Bridges, Omaha; University of the City of New York Medical Department, 1879; past president of the Nebraska State Medical Association, of the Omaha-Douglas County Medical Society and the Missouri Valley Medical Association; professor emeritus of medicine at the University of Nebraska College of Medicine, in 1911 associate dean and dean from 1914 to 1920; was a delegate to international medical congresses at Madrid, Budapest and London; in 1928 received the honorary degree of doctor of laws from the University of Nebraska; aged 81; died, March 4, in the Methodist Hospital of cerebral arteriosclerosis.

Charles Peter White ✠ Wilmington, Del.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; past president of the Medical Society of Delaware and past president and secretary of the Newcastle County Medical Society; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; on the staffs of the Delaware and Wilmington General hospitals; ophthalmologist to the Delaware State Hospital, Farnhurst; aged 67; died, April 13, of heart disease.

Eustace Lincoln Fiske ✠ Glendale, Calif.; Harvard University Medical School, Boston, 1886; member of the Massachusetts Medical Society; member, 1897-1899, and president in 1899 of the city council of Fitchburg, Mass., and for twelve years chairman of the board of health; visiting physician to the Burbank Hospital, Fitchburg, 1900-1922, and chairman of the board, 1910-1922; aged 77; died, March 20, in the Physicians and Surgeons Hospital of pneumonia.

Donald Stansbury Adams ✠ Worcester, Mass.; University of Virginia Department of Medicine, Charlottesville, 1917; member of the New England Surgical Society; fellow of the American College of Surgeons; served during the World War; on the staffs of the Memorial Hospital, Worcester, Masonic Hospital, Shrewsbury, Webster District Hospital, Webster, and Harrington Memorial Hospital, Southbridge; aged 45; died, March 13, of a self-inflicted bullet wound.

William H. Kennedy, Indianapolis; Medical College of Indiana, Indianapolis, 1903; member of the House of Delegates of the American Medical Association in 1926; assistant professor of radiology at the Indiana University School of Medicine; member of the Indiana State Medical Association and the American Radium Society; aged 61; died, April 21, in the Robert W. Long Hospital of myeloid leukemia.

Thomas Marcus Bull ✠ Naugatuck, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1887; past president of the New Haven County Medical Society; member and for many years president of the board of education of Naugatuck; on the staff of the Waterbury Hospital; aged 74; died, March 28, at his winter home in Winter Park, Fla., of pneumonia.

Logan Elmore Farthing ✠ Wilmington, N. C.; University of North Carolina School of Medicine, Chapel Hill, 1906; past president and secretary of the New Hanover County Medical Society; past president and secretary of the staff of the James Walker Memorial Hospital; on the staff of the Bulluck Hospital; aged 58; died, March 31, of amebic colitis and perforation of the sigmoid with abscess.

Tolbert Barton Hinson ✠ Enid, Okla.; Hospital College of Medicine, Louisville, 1905; past president of the Oklahoma State Hospital Association; fellow of the American College of Surgeons; on the staff of the Enid Springs Sanitarium and Hospital; served during the World War; aged 56; died, March 21, of pulmonary embolus following fracture of the hip.

William Carl Haupt, Brooklyn; University and Bellevue Hospital Medical College, New York, 1907; member of the Medical Society of the State of New York; fellow of the American College of Surgeons; on the staff of the Brooklyn Eye and Ear Hospital and Norwegian Lutheran Deaconesses' Home and Hospital; aged 55; died, March 23.

Frank P. Patterson, Vancouver, B. C., Canada; McGill University Faculty of Medicine, Montreal, Que., 1898; member of the North Pacific Surgical Association and the American Academy of Orthopedic Surgeons; fellow of the American College of Surgeons; aged 62; died, February 3.

Earl Aden Hogan, New Orleans; Northwestern University Medical School, Chicago, 1901; formerly assistant professor of medical aspects of life insurance, Tulane University Graduate School of Medicine; veteran of the Spanish-American and World wars; aged 63; died, March 16.

James Jackson Minot ✠ Boston; Harvard University Medical School, Boston, 1878; honorary president and for many years vice president of the Boston Tuberculosis Association; consulting physician to the Massachusetts General Hospital; aged 85; died, April 30, of arteriosclerosis.

Samuel William Evans, Cleveland; Western Reserve University Medical Department, Cleveland, 1895; member of the Ohio State Medical Association; served during the World War; aged 63; died, March 14, in St. Alexis Hospital of coronary sclerosis and bronchopneumonia.

William Burnett, Montreal, Que., Canada; University of Bishop College Faculty of Medicine, Montreal, 1892; served with the Canadian Army during the World War; for many years on the staff of the Woman's General Hospital, Westmount; aged 67; died, March 8.

James Lindsay France ✠ Wilmington, Del.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1892; veteran of the Spanish-American War; on the staff of the Delaware Hospital; aged 67; died, March 14, of pneumonia.

Robert Henry Snowden ✠ Medical Inspector, Commander, U. S. Navy, Bremerton, Wash.; University of Tennessee College of Medicine, Memphis, Tenn., 1915; entered the navy in 1917; aged 47; died, February 4, on board the U. S. S. *Mississippi* of thrombosis.

Frederick William Heysett ✠ Ludington, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; past president of the Mason County Medical Society; on the staff of the Paulina Stearns Hospital; aged 68; died, March 12.

John Andrew Brewin, Everett, Mass.; North Carolina Medical College, Davidson, 1904; member of the Massachusetts Medical Society; formerly chairman of the board of health; aged 61; died, March 7, at the Baker Memorial Hospital, Boston, of pneumonia.

Arthur Richmond Crandell ✠ Taunton, Mass.; Harvard University Medical School, Boston, 1896; member of the New England Pediatric Society; for many years member of the school board; on the staff of the Morton Hospital; aged 67; died, March 18.

Calvin Daniel Christ ✠ Orlando, Fla.; College of Physicians and Surgeons, Baltimore, 1905; past president of the Orange County Medical Society; on the staff of the Orange General Hospital; at one time county physician; aged 59; died, March 19.

Edgar Vernon Henry ✠ Beaumont, Texas; Chicago College of Medicine and Surgery, 1915; served during the World War; on the staffs of the Hotel Dieu Hospital and St. Therese Hospital; aged 46; died, March 19, in the John Sealy Hospital, Galveston.

Frederick Ernst Buchen, Darby, Mont.; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; formerly vice president of the Medical Association of Montana; aged 72; died, March 1, at Hamilton of cirrhosis of the liver and nephritis.

Pearl S. Windham ✠ Saginaw, Mich.; Detroit College of Medicine, 1902; past president of the Saginaw County Medical Society; fellow of the American College of Surgeons; on the staff of the Saginaw General Hospital; aged 62; died, February 23.

Harry William Dickerson, San Diego, Calif.; Washington University School of Medicine, St. Louis, 1904; member of the California Medical Association; aged 63; died, March 24, in the Mercy Hospital of Hodgkin's disease and secondary anemia.

John Andrew Heinlein, Bridgeport, Ohio; Jefferson Medical College of Philadelphia, 1886; formerly health officer, postmaster, and member of the school board; aged 76; died, March 3, of bronchopneumonia, acute bronchitis and arteriosclerosis.

Victor Biart ✠ Captain, U. S. Army, retired, Norwalk, Conn.; Missouri Medical College, St. Louis, 1876; entered the army as an assistant surgeon in 1878 and retired as captain in 1891 for disability in line of duty; aged 90; died, March 26.

George A. Brown, Banner Elk, N. C.; University College of Medicine, Richmond, 1897; member of the Medical Society of the State of North Carolina; aged 68; died, March 28, of acute dilatation of the heart, hypertension and nephritis.

Robert Oliver Baldwin, Oakland, Calif.; University of California Medical Department, San Francisco, 1885; formerly county coroner; aged 72; died, March 28, in the Peralta Hospital of coronary thrombosis and secondary anemia.

J. Davis Forster, New Smyrna, Fla.; Barnes Medical College, St. Louis, 1896; member of the Florida Medical Association; served during the World War; aged 67; died, March 22, in the Veterans Administration Facility, Bay Pine.

Wilson Luther Gleason, Fairview, Okla.; Drake University College of Medicine, Des Moines, Iowa, 1884; Bennett College of Eclectic Medicine and Surgery, Chicago, 1888; aged 79; died, March 28, of cerebral hemorrhage.

Ben Neal Ard, Dallas, Texas; Baylor University College of Medicine, Dallas, 1915; member of the State Medical Association of Texas; served during the World War; aged 53; died, March 29, of carcinoma of the esophagus.

John Otto Ficke, Salem, Mo.; Beaumont Hospital Medical College, St. Louis, 1900; member of the Missouri State Medical Association; county coroner; aged 66; died suddenly, March 23, of cerebral hemorrhage.

Thomas Emmett Farrell, Seneca, Wis.; Milwaukee Medical College, 1901; member of the State Medical Society of Wisconsin; served during the World War; aged 61; died, February 2, of coronary thrombosis.

Charles Frederick Colfax Hancock ⊕ Jeffersonville, Ind.; Medical College of Ohio, Cincinnati, 1887; formerly member of the state legislature; aged 71; died, March 27, of cerebral hemorrhage and arteriosclerosis.

Cecil Denham, Buckhannon, W. Va.; College of Physicians and Surgeons, Baltimore, 1901; served during the World War; formerly superintendent of the Weston (W. Va.) State Hospital; aged 64; died, March 4.

Sylvan M. Pearman, Pasadena, Calif.; Homeopathic Medical College of Missouri, St. Louis, 1886; Hahnemann Medical College and Hospital of Philadelphia, 1891; aged 79; died in March of diabetes mellitus.

J. P. Heath, Fishers, Ind.; College of Physicians and Surgeons of Indiana, Indianapolis, 1877; Medical College of Indiana, Indianapolis, 1879; aged 85; died, March 2, in the Methodist Hospital, Indianapolis.

Henry Herman Claus Heuck, Orange, Calif.; Chicago College of Medicine and Surgery, 1912; formerly associated with the U. S. Public Health Service; aged 54; died, March 30, of cerebral hemorrhage.

Theodule Bruneau, Montreal, Que., Canada; Laval University Medical Faculty, Montreal, 1896; professor of clinical medicine at the University of Montreal Faculty of Medicine; aged 64; died, February 9.

Clarence Edward Persons, Marshall, Minn.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1877; member of the Minnesota State Medical Association; aged 90; died, January 4.

Robert Park Adams, Atlanta, Ga.; University of Georgia Medical Department, Augusta, 1904; member of the Medical Association of Georgia; aged 60; died, March 14, of chronic nephritis and arthritis.

Joseph Churchill Patton, Toronto, Ont., Canada; M.B. University of Toronto Faculty of Medicine in 1888 and M.D. Victoria University Medical Department, Coburg, 1888; aged 87; died, February 7.

Andrew Y. Hatchett, Bloomfield, Ky.; Kentucky School of Medicine, Louisville, 1891; aged 72; died, March 23, in the Kentucky Baptist Hospital, Louisville, of pulmonary embolism and diabetes mellitus.

Victor Eugene Putnam, San Francisco; University of California Medical Department, San Francisco, 1896; member of the California Medical Association; aged 66; died, March 11, of cerebral hemorrhage.

Joseph Georges Albert Bouvier, St. Albert, Ont., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1908; aged 56; died, February 12.

Joseph C. R. Doggett ⊕ Crane, Mo.; Barnes Medical College, St. Louis, 1905; also a druggist; aged 56; died, March 29, in St. John's Hospital, Springfield, of nephritis, arteriosclerosis and hypertension.

Granville Howard Twining ⊕ Mobridge, S. D.; Rush Medical College, Chicago, 1910; fellow of the American College of Surgeons; surgeon to the Mobridge Hospital; aged 61; died, February 4.

John Sidney Branch, Lettsworth, La.; University of Louisville (Ky.) Medical Department, 1881; member of the Louisiana State Medical Society; aged 78; died, March 8, of coronary thrombosis.

James Robert Floyd, Fort Worth, Texas; Memphis (Tenn.) Hospital Medical College, 1887; member of the State Medical Association of Texas; aged 77; died, March 31, of pneumonia.

Herbert Charles Stanton, Clifton Heights, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1901; medical director of the Burn Brae Hospital; aged 63; died, February 8.

Louis C. Mullikin, Los Angeles; Jefferson Medical College of Philadelphia, 1892; aged 77; died, March 6, in the Los Angeles County General Hospital of hypertensive heart disease.

M. G. Herrell, Powell Station, Tenn.; Tennessee Medical College, Knoxville, 1906; member of the Tennessee State Medical Association; county physician; aged 58; died, February 4.

Edward Hayden ⊕ Cashmere, Wash.; National Medical University, Chicago, 1907; Chicago College of Medicine and Surgery, 1908; aged 66; died, March 9, of coronary disease.

Elmer Ellsworth Hendershot, Tecumseh, Mich.; University of Michigan Department of Medicine and Surgery, 1886; bank president; aged 76; died, March 8, of coronary thrombosis.

Howard E. Ezell, Oliver, Ga.; Atlanta College of Physicians and Surgeons, 1902; formerly mayor; aged 59; died, March 15, of essential hypertension and cerebral hemorrhage.

George Albert Slocomb, Cohasset, Mass.; Boston University School of Medicine, 1880; served the Hahnemann Hospital, Worcester, in various capacities; aged 80; died, January 31.

Robert Lawson Hope, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1881; past president of the county board of education; aged 78; died, February 25.

Deddo H. W. Borgman, Louisville, Ky.; University of Louisville Medical Department, 1894; member of the Kentucky State Medical Association; aged 65; died, January 23.

William E. Wells, Lakewood, Ohio; Homeopathic Hospital College, Cleveland, 1885; formerly on the staff of the Huron Road Hospital, Cleveland; aged 76; died, February 6.

John William Folk, Newberry, S. C.; Medical College of the State of South Carolina, Charleston, 1874; formerly member of the state legislature; aged 86; died, February 3.

Frederick Burr Dezell ⊕ Lynn, Mass.; Albany (N. Y.) Medical College, 1896; on the courtesy staff of the Lynn Hospital; aged 70; died, February 2, of aortic stenosis.

Melville G. Evans, Portland, Ore.; St. Louis College of Physicians and Surgeons, 1904; aged 65; was found dead in his garage, March 29, of carbon monoxide poisoning.

Herbert Henderson Sinclair, Walkerton, Ont., Canada; University of Toronto Faculty of Medicine, 1894; Trinity Medical College, Toronto, 1894; aged 67; died, February 1.

John H. Riera, Fontainebleau, France; University of Pennsylvania Department of Medicine, Philadelphia, 1885; formerly a resident of Philadelphia; aged 78; died, March 5.

Leverette H. Crapp, St. Louis; St. Louis College of Physicians and Surgeons, 1900; aged 64; died, March 23, of hemiplegia, arteriosclerosis and cerebral hemorrhage.

William Francis Holmes, Florence, S. C.; Howard University College of Medicine, Washington, D. C., 1910; aged 69; died, March 9, of influenza and pneumonia.

Joseph P. Hennerich, St. Louis; St. Louis Medical College, 1887; member of the Missouri State Medical Association; aged 78; died, March 30, of coronary occlusion.

John Franklin Anderson, Chicago; Northwestern University Medical School, Chicago, 1930; member of the Illinois State Medical Society; aged 45; died, March 19.

Emery Milton Goodwin, East Cleveland, Ohio; Western Reserve University Medical Department, Cleveland, 1895; aged 69; died, March 23, of carcinoma of the hand.

Walter Bozeman Moorer, Repton, Ala.; Birmingham Medical College, 1903; member of the Medical Association of the State of Alabama; aged 63; died, January 16.

Leidy L. Cope, Hatfield, Pa.; Jefferson Medical College of Philadelphia, 1883; formerly member of the board of health and school board; aged 78; died, February 8.

Francis O. Ritter, Allentown, Pa.; University of Maryland School of Medicine, Baltimore, 1881; formerly bank president; aged 79; died, February 11, of cholecystitis.

Evan Ardiel, Washtucna, Wash.; Western University Faculty of Medicine, London, Ont., Canada, 1906; aged 57; died, March 21, in Portland, Ore., of thrombosis.

John Henry Chapman, Tanner, W. Va.; University of Louisville (Ky.) Medical Department, 1895; served during the World War; aged 71; died, February 20.

Ezra McKnight Davis, Mayesville, S. C.; George Washington University School of Medicine, Washington, D. C., 1908; aged 54; was shot and killed, March 11.

Edwin Garfield Festerling ⊕ Milwaukee; University of Pennsylvania School of Medicine, Philadelphia, 1911; aged 57; died, March 25, of coronary thrombosis.

Samuel Q. Bass, Cincinnati; Pulte Medical College, Cincinnati, 1896; served during the World War; aged 65; died, March 3, of hypertensive heart disease.

Theodore F. H. Spreng, Los Angeles; Hahnemann Medical College and Hospital, Chicago, 1879; aged 85; died, March 27, of arteriosclerosis and hypertension.

Charles Theodore Cutting, Los Angeles; Hahnemann Medical College and Hospital of Philadelphia, 1898; aged 61; died, March 7, of rupture of the heart.

C. F. Guthrie, Alfred, Ohio; College of Medicine and Surgery, Chicago, 1895; aged 78; died, March 3, of mitral regurgitation and parkinsonian disease.

John James Bourn, Palo Alto, Calif.; Rush Medical College, Chicago, 1896; aged 67; died, March 13, in the Palo Alto Hospital, of disease of the adrenals.

William Lee Calvert, Louisville, Ky.; Louisville Medical College, 1906; served during the World War; aged 53; died, March 21, of cerebral hemorrhage.

George P. Sanders, Stephens, Ark.; Memphis (Tenn.) Hospital Medical College, 1904; member of the Arkansas Medical Society; aged 64; died, January 15.

Frances Harriet Drew, Quincy, Mass. (licensed in Massachusetts under the Act of 1907); aged 85; died, March 12, of myocarditis and bronchopneumonia.

John Azerre Flowers, St. Louis; Chicago Medical School, 1918; Meharry Medical College, Nashville, Tenn., 1920; aged 54; died, March 25, of peritonitis.

Thomas L. Hood, West Monroe, La.; Louisville (Ky.) Medical College, 1887; formerly mayor and member of the state senate; aged 75; died, January 9.

Jacob Wade Paul Goudy, Bristol, Maine; University of Vermont College of Medicine, Burlington, 1896; aged 72; died, March 2, of coronary thrombosis.

William Thomas Little ⊕ Paducah, Ky.; University of Louisville School of Medicine, 1907; served during the World War; aged 53; died, February 2.

Jesse Vincent Gilbert, Maricopa, Calif.; College of Physicians and Surgeons, Baltimore, 1896; aged 74; died, March 6, of carcinoma of the stomach.

Clifford E. Flaningam, Las Cruces, N. M.; University of Louisville (Ky.) Medical Department, 1915; aged 48; died, March 17, of heart disease.

William D. Corse, Baltimore; University of Maryland School of Medicine, Baltimore, 1887; aged 71; died, March 13, of carcinoma of the tongue.

Nathaniel Ellis Oliver, Costa Mesa, Calif.; Chicago Medical College, 1880; aged 81; died, February 27, of chronic myocarditis and arteriosclerosis.

Harlan L. Byington, Risingsun, Ohio; Physio-Medical Institute, Cincinnati, 1876; aged 86; died, March 29, of myocarditis and mitral regurgitation.

John T. Gill, Echo, Minn.; New York Homeopathic Medical College, New York, 1886; aged 79; died, February 21, of acute cardiac dilatation.

Carl Peter Fallen, Norfolk, Conn.; Dartmouth Medical School, Hanover, N. H., 1893; aged 75; died, March 30, of cerebral arteriosclerosis.

Isaac Cecil Walker ⊕ Marion, Ill.; St. Louis College of Physicians and Surgeons, 1897; aged 67; died, February 26, of pulmonary tuberculosis.

Izatus L. Smith, Syracuse, Neb.; Kentucky School of Medicine, Louisville, 1890; aged 83; died, February 10, of cholangitis and cholelithiasis.

Peter Leroy Hartman, Colon, Mich.; Jefferson Medical College of Philadelphia, 1890; aged 71; died, March 30, of cerebral hemorrhage.

Claude George Burgess ⊕ Detroit; Detroit College of Medicine, 1903; aged 60; died, March 14, in the Harper Hospital of pneumonia.

Lynn Moore Barnes, Decatur, Ill.; Harvard University Medical School, Boston, 1900; aged 64; died, March 13, of chronic nephritis.

Oliver Fernald Cushing, Thomaston, Maine; Medical School of Maine, Portland, 1883; aged 76; died, March 17, of angina pectoris.

Edward R. Flinchpaugh, Cincinnati; Cincinnati College of Medicine and Surgery, 1895; aged 69; died, March 7, of arteriosclerosis.

Lawrence A. Wagner, Youngstown, Ohio; Marion-Sims College of Medicine, St. Louis, 1899; aged 73; died, March 21, of pneumonia.

William D. Hutto, Greenwood, S. C.; Medical College of the State of South Carolina, Charleston, 1882; aged 79; died, February 25.

Aslan Nacciarone, New York; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1898; aged 66; died in February.

Harlin Clyde Henderson, Carpinteria, Calif.; Rush Medical College, Chicago, 1896; aged 63; died, March 6, of cerebral hemorrhage.

Joshua Newton Mack, Halifax, N. S., Canada; Bellevue Hospital Medical College, New York, 1875; aged 93; died, February 7.

Edward Sims Hawkins, Cedar Hill, Tenn.; University of Louisville (Ky.) Medical Department, 1880; aged 88; died, January 15.

Isaac Newell Eastman, Groton, Vt.; Kentucky School of Medicine, Louisville, 1893; aged 71; died, March 16, of chronic nephritis.

Robert W. Chalfant, Bellefontaine, Ohio; Eclectic Medical Institute, Cincinnati, 1882; aged 85; died, March 1, of diabetes mellitus.

John Becker, Milwaukee; Fort Wayne (Ind.) College of Medicine, 1890; aged 84; died, March 11, of cerebral hemorrhage.

Charles T. Shinn, Stonehurst, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1891; aged 86; died, February 7.

John Pinkham Rice, San Antonio, Texas; American Medical College, St. Louis, 1877; aged 84; died, February 23, of senility.

Warren T. Binion, Cumby, Texas (licensed in Texas, under the Act of 1907); aged 82; died, March 21, of carcinoma of the larynx.

Humberto Cuen, Claremore, Okla.; St. Louis University School of Medicine, 1934; aged 28; died, March 28, of heart disease.

Ira Wickliff Bouldin, Santa Ana, Calif.; Hahnemann Medical College and Hospital, Chicago, 1886; aged 80; died, March 30.

Robert French Ferguson, Clarksville, Tenn.; University of Nashville Medical Department, 1876; aged 82; died, January 21.

D. Iris Cochran, Hamilton, Ohio; Cleveland Homeopathic Medical College, 1903; aged 60; died, March 20, of carcinoma.

Walter Lewis Hallet, Brockton, Mass.; Harvard University Medical School, Boston, 1886; aged 78; died, March 9.

Henry Franklin Zink, Tulsa, Okla.; Eclectic Medical University, Kansas City, Mo., 1906; aged 70; died, February 21.

John Franklin Clark, Rayville, Mo.; Northwestern Medical College, St. Joseph, 1893; aged 82; died, March 23.

Henry D. Rinehart, Pasadena, Calif.; Long Island College Hospital, Brooklyn, 1886; aged 74; died in February.

Charles De Witt Hibbetts, Naples, Texas; Barnes Medical College, St. Louis, 1904; aged 58; died, March 1.

Samuel Lerner, Quincy, Mass.; St. Louis College of Physicians and Surgeons, 1921; aged 42; died, January 1.

George M. Bradford, Mount Morris, Pa.; Pulte Medical College, Cincinnati, 1889; aged 74; died, February 18.

Eugene Maurice Griffin, Crider, Ky.; Hospital College of Medicine, Louisville, 1897; aged 68; died, March 10.

Eugene Coffeen, Redondo Beach, Calif.; Hering Medical College, Chicago, 1900; aged 84; died, March 23.

John Angus Garrard, Roberta, Ga.; Birmingham (Ala.) Medical College, 1913; aged 58; died, March 15.

J. F. Evans, Stephens, Ark. (licensed in Arkansas in 1903); aged 68; died, March 14, of acute myocarditis.

L. A. Hill, Hot Springs National Park, Ark. (licensed in Arkansas in 1903); aged 65; died, March 21.

W. P. Wilson, Ocala, Fla.; Meharry Medical College, Nashville, Tenn., 1897; aged 68; died, February 25.

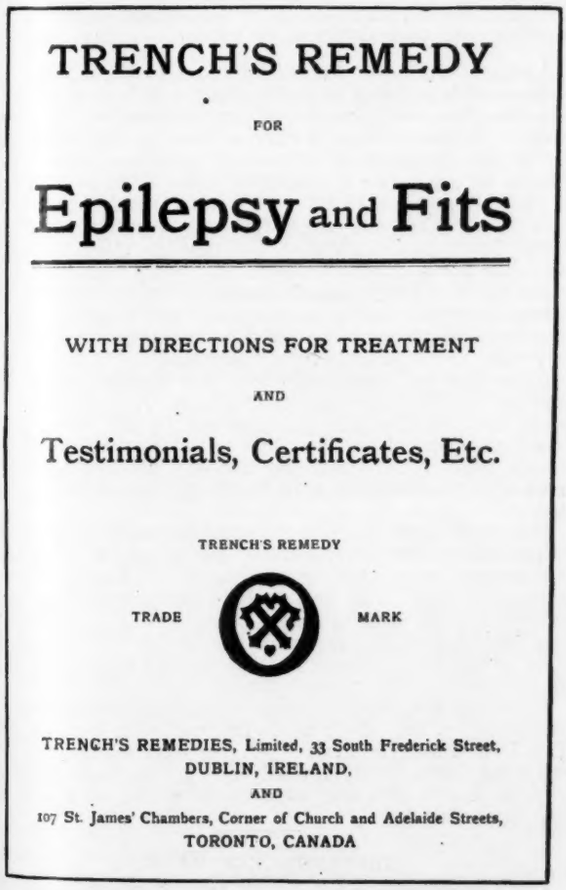
Bureau of Investigation

THE TRENCH EPILEPSY CURE FRAUD

A Bromide Mixture Sold from Toronto and Dublin is Denied the U. S. Mails

Trench's Remedies, Ltd., at Dublin, Ireland, and Toronto, Canada, was declared by the Postoffice Department to be a scheme for obtaining money through the mails by means of false and fraudulent pretenses and was excluded from the United States mails on March 30, 1938.

More than a quarter of a century ago THE JOURNAL published an article in this department on "Trench's Remedy" and gave the essential facts regarding it, together with the results of analyses made by the British Medical Association. It was



shown then that the stuff came in two forms: a liquid as sold in the British Isles and a powder as sold in the United States, as well as in Canada and in other parts of the British empire.

The liquid contained 70 grains of potassium bromide and 10 grains of ammonium bromide to the fluidounce, with sugar to sweeten and fuchsin to color it. The powder was a mixture of 61 parts of potassium bromide and 39 parts of brown sugar.

The memorandum of the Solicitor of the Postoffice Department, recently sent to the Postmaster General recommending the issuance of a fraud order, states that Trench's Preparation has been advertised "in various publications throughout the United States." The address given in such advertisements is usually that of the Toronto branch of this mail-order quackery. Those who answer the advertisement receive a form letter from Trench's Remedies, Ltd., in which the prospective victim is told, in effect, that the use of the Trench product will cure epilepsy.

Part of the advertising ballyhoo is a "Certificate of Analysis" said to have been given by "Granville H. Sharpe, F.C.S., Analytical and Consulting Chemist," London, England. The "analysis" gives no information regarding the composition of the "patent medicine" but does describe it as a "skilfully and judiciously compounded preparation." As THE JOURNAL pointed out twenty-six years ago, Granville H. Sharpe was a faker who for years made a business of furnishing—at a price—"certificates" that could be used as advertising assets.

The government chemists found the Trench preparation to be essentially what the British Medical Association had reported in 1912. Because a mixture of bromides and brown sugar will not cure epilepsy or restore epileptics to normal health, as claimed, the Trench business was declared a fraud.

THE LYTHEROL FRAUD

George P. Seiler's Lyteric Products Company Debarred from the U. S. Mails

"Lytherol" was sold through the mails as a cure for hay fever, head colds, sinusitis and passive congestion of the nasal canal. It was put on the market by one George P. Seiler, a real estate salesman of New Orleans. Government chemists reported that Lytherol consisted of "fatty oil, small amounts of oleic acid and traces of oil of lavender." It was to be dropped into the nostrils and "snuffed up" as far back as possible.

Seiler claimed to have learned of this wonder from a Greek whom he met in New York several years ago. The preparation was found to have neither germicidal nor even antiseptic action but was merely slightly emollient.

Seiler submitted no evidence for the claims made for his nostrum and made no appearance at the hearing. He contented himself with a mere denial of the charge of fraud. The charge, however, stood, and on March 12, 1938, a fraud order was issued against the Lyteric Products Company.

Correspondence

THERAPY OF JAUNDICE

To the Editor:—Regarding the article on the "Therapy of Icterus (Jaundice)" (THE JOURNAL, March 5, p. 732) I believe that section E, paragraph 3, of treatment, in which it is stated regarding the use of intravenous dextrose that it must be given intravenously as then the glycogen is deposited in the liver more liberally than when the sugar is taken by mouth, should be changed to:

> In patients who cannot take oral dextrose because of vomiting or drowsiness it must be given intravenously, but in patients who can take and retain dextrose by mouth it should be given orally, since this method is simpler and more convenient. The glycogen deposit in the liver is practically the same in the two methods.

This suggestion is advanced on the basis of Althausen's paper on "Deposition of Glycogen in Normal and in Experimentally Damaged Livers After Oral and Intravenous Administration of Dextrose" in the *American Journal of Digestive Diseases*, January 1938, page 752, which seems to indicate the effectiveness of giving dextrose in either way when the liver is damaged.

FRANKLIN W. WHITE, M.D., Boston.

TREATMENT OF GIARDIASIS

To the Editor:—In THE JOURNAL of March 12, page 834, I read with interest your answer on the treatment for Giardia (Lamblia). There is a treatment against this parasite which has been successfully used in hundreds of cases. It was first suggested and tried by Galli-Valerio, professor of parasitology at the University of Lausanne (Galli-Valerio, Bruno: La lambliase et son traitement par l'atébrine, *Schweiz. med. Wchnschr.* **67**:1121 [Dec. 11] 1937. Tecon, R. M.: La lambliase hépatique et son traitement, *J. belge gastro-entérol.* **5**:315 [April] 1937; La lambliase et posologie de l'atébrine, *Schweiz. med. Wchnschr.* **68**:247 [March 12] 1938). The drug is a salt of amino acridine, which is used in the treatment of malaria and is known under the name of atabrine. The dose usually ordered is 0.1 Gm. three times a day for five days, but I showed recently that complete destruction of the parasites and cure of the patient could be obtained with 0.1 Gm. once a day for two or three days.

RENÉ MAURICE TECON, M.D., Lausanne, Switzerland.

NERVE INJURIES AND DEXTROSE

To the Editor:—In the article March 26 by Dr. George B. Hassin there are references, both in the heading of the article and in the text, to nerve injuries caused by intravenous injections of dextrose. After reading the article I am at a loss to understand why dextrose was included as part of the cause of these injuries, since the case records seem to indicate quite clearly that the injuries were incident to the injections and not to the substance injected.

HOMER K. NICOLL, M.D., Chicago.

NOTE.—The letter was referred to Dr. Hassin, who writes:

To the Editor:—It would be absurd to claim that dextrose injected intravenously caused the nerve injuries in the eight cases quoted in my article. Among the probable causes of the injuries—direct lesion to the nerves, edema, pressure or other factors—I did not mention dextrose. I included it in the caption because no other substance is used so extensively, in so large amounts and through so many hours as the solutions of dextrose. Any other substance injected intravenously under similar circumstances would give complications as described, which, of course, like the injections of dextrose, would be accidental and not caused by the injected substance itself.

GEORGE B. HASSIN, M.D., Chicago.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

INTRADERMAL AND PRECIPITIN TESTS FOR TRICHINOSIS

To the Editor:—Please give me some information regarding the Bachman intradermal test for trichinosis, including the technic and information as to where I can obtain the material for making the test.

ALBERT A. SCHULTZ, M.D., Fort Dodge, Iowa.

ANSWER.—The antigen in the Bachman intradermal test for trichinosis consists of an extract of trichinella larvae in Coca's solution (sodium chloride 0.7 per cent, sodium bicarbonate 0.05 per cent and phenol [carbolic acid] 0.4 per cent in distilled water). The test is done as follows: 0.1 cc. of a 1:10,000 dilution in Coca's solution of the trichinella antigen is injected intradermally into the flexor surface of the forearm and the same amount of Coca's solution injected into the other arm as a control. A delayed or immediate type of reaction may develop, depending on the stage of the illness. During the first week of the disease there is usually a delayed type of reaction consisting of erythema, and edema at the site of the injection from twelve to twenty-four hours after injection. The immediate type of reaction usually is obtained during the second week of the injection. Within five minutes after the injection a blanched wheal appears, sometimes with pseudopodia running out from it. A pronounced area of erythema surrounds the wheal. The reaction reaches its maximum in one hour and then gradually subsides. This type of reaction may be elicited months and years after the acute illness has subsided. A more reliable test in the diagnosis of trichinosis, and utilizing the same antigen in a dilution of 1:100, is the precipitin test. This is done by overlaying 0.5 cc. of blood serum in a small tube with an equal amount of the 1:100 antigen. A control test is run in a second tube with the same amount of serum overlaid with Coca's solution. The tubes are placed in a water bath at 37.5 C. for one hour. A positive test shows a white ring at the junction of the antigen and serum. This test usually becomes positive during the third week of the illness. At present there is no available commercial preparation of the antigen. The method of preparing the antigen and results of its clinical application are discussed in the following:

Augustine, D. L., and Theiler, Hans: Precipitin and Skin Tests as Aids in Diagnosing Trichinosis, *Parasitology* **24**: 60 (March) 1932.

Spink, W. W.: Trichinella Antigen: Further Observations on Its Use in the Diagnosis of Trichinosis, *New England J. Med.* **216**: 5 (Jan. 7) 1937.

DESENSITIZATION IN ARRESTED PULMONARY TUBERCULOSIS

To the Editor:—A woman aged 21, a school teacher, has had symptoms of hay fever for the last ten years within two days of August 15, with the exception of 1937. Last summer they occurred July 15 and were especially severe, lacrimation being so profuse that she could not see. I advised a trip 150 miles north, where ragweed is scarce. I have no information regarding the presence of grasses in that locality, but in two days after arriving she was symptom free. Symptoms returned immediately on return six days later. About August 1 she again drove north for relief and remained two weeks symptom free, at which time she returned, only to suffer from hay fever until late in September. Her pollen scratch tests at present are as follows: elm, 1 plus; oak, trace; blue grass (June), 4 plus; timothy, 3 plus; red top, 4 plus; giant ragweed, 4 plus; short ragweed, 4 plus. Corn smut, yeast and alternaria are negative. The past history is negative with the exception that in 1935 she was bedridden with pleurisy. Although there are a few subcrepitant rales in the right apex, the x-ray report states "pulmonary tuberculosis apparently arrested." Is there any contraindication to desensitizing three years after active pulmonary tuberculosis has been arrested? Would a shotgun mixture of mixed grasses and short and tall ragweed defeat its own purpose? If not, what concentrations would you advise? Have you any other suggestions or comments regarding desensitization of this patient? M.D., New York.

ANSWER.—Although the patient reacts to ragweed and grass pollens and is probably clinically sensitive to both of these types of pollens, the history would indicate that another type of sensitivity is present. Seasonal rhinitis from the middle of July to the middle of August in the territory under discussion would be difficult to explain on the basis of pollen allergy. The patient is probably sensitive to fungi in spite of the fact that tests to corn smut, yeast and alternaria were reported as negative. More thorough investigation for possible mold sensitization should be made. This should include scratch tests with a more inclusive list of fungi, such as alternaria, aspergillus, penicillium, hormodendrum, monilia, chaetomium, mucor, cephalosporium, fusarium and smut. If no reactions are obtained, intradermal tests with the same fungi should be tried.

There are no contraindications for desensitization in an arrested case of pulmonary tuberculosis. As a matter of fact many phthisiologists and allergists are of the conviction that active symptoms of hay fever and asthma may activate a tuberculosis and therefore anything that can be done to minimize these allergic symptoms may be of appreciable benefit to the patient.

It is not advisable to mix the grass pollens with the ragweed pollens, chiefly for the reason that the difference in the seasons will necessitate a differing progression of doses for the two types of pollen. It is best to have the grass pollens in one mixture and the ragweed pollens in another. The two injections may be given at the same visit, one in the right arm and the other in the left. The average patient may begin with 0.05 cc. of 1:10,000 of these pollen extracts.

Of course, it is important to avoid systemic reactions in every patient but perhaps more so in this particular type of patient. This is best done by attention to the local reactions from the preceding doses, by the gradual and easy stages of progression of doses and by care used in ascertaining that the needle is not in a blood vessel.

INDIAN OR KARAYA GUM

To the Editor:—Please give me any available information on the use of Indian gum (Karaya gum), in foodstuffs, toilet preparations and dental powders and pastes. I have found several patients sensitized to Indian gum. Most of them had violent perennial hay fever symptoms, the source of the Indian gum being wave sets. However, I understand that Indian gum is frequently used as a filler for ice creams and certain pies. One of my patients had a violent nasal reaction from swallowing a small amount of Indian gum. Consequently it can apparently cause trouble by being swallowed as well as by inhalation. In particular, I should like further information as to its presence in foodstuffs and also as to its presence in tooth powders and tooth pastes. M.D., Ohio.

ANSWER.—Manufacturers are permitted to use such vegetable gums, if of suitable purity, as long as such use does not result in the concealment of damage or inferiority of the product, and provided their presence is conspicuously declared on the labels of foods in which they are not recognized ingredients. Karaya gum, depending on its source, may have either adhesive properties or a high hydrophilic property. Because of either of these characteristics, the gum has been used as a filler in the manufacture of ice cream and desserts. It is especially useful when there is need for preventing the product from losing its form as it melts. It has a further use in food products such as dessert powders and beverage bases, in which it is sometimes present in small amounts as an emulsifying agent. Its use as a mechanical laxative is increasing because of its low price and swelling properties.

It is a common ingredient of toilet preparations, denture adhesive powders and paste dentifrices. For the former it is

used principally in wave setting lotions because of its mucilaginous consistency. A case of alleged sensitivity to Karaya gum was reported by Samuel M. Feinberg in THE JOURNAL, Aug. 17, 1935, page 505. As a general rule, it does not occur in tooth powders. More often it occurs in tooth paste as a binding agent. It is being used for this purpose less frequently than formerly. Lactona Dentifrice, accepted by the Council on Dental Therapeutics of the American Dental Association, is the only one of the accepted dentifrices to contain it. There is not enough evidence at the present time to warrant the discontinuance of its use. Karaya gum is a common constituent of adhesive powders to hold dental plates. A report of the Council on Dental Therapeutics (*J. A. D. A.* **24**:1383 [Aug.] 1937) indicates a connection with certain conditions such as tuberculosis, anemia and drowsiness, although the connection remains to be confirmed.

REMOVAL OF TEETH FOR PYORRHEA

To the Editor:—The question of the extraction of teeth because of pyorrhea has come up in the case of a young woman. I am unable to advise her because of the conflicting opinions of several dentists whom she has consulted about the matter. She is generally in good health except for a coxalgia, which is somewhat troublesome. The disorder at present is hardly severe enough to warrant the removal of her teeth, unless her present trouble might be considered the forerunner of a more severe type of arthritic disease. The first dentist whom she saw advised extraction of all the upper teeth and the fitting of a denture. He gave the following reasons for his advice: 1. That the treatment of pyorrhea is a protracted affair, with little if any promise of permanent cure, therefore making it more costly than a removable denture, which will be necessary sooner or later in any event. 2. That the depth of the pockets along the gum margin render it impossible really to get at all of the infection. 3. That to permit the diseased teeth to remain will result eventually in the eroding of the bony processes around the teeth, thus making the fitting of a removable denture more difficult later on. 4. That the teeth are cosmetically not good looking, because they are spaced far apart, are discolored and that for the latter reason a removable well fitted denture would be a distinct improvement cosmetically. 5. That there is a certain amount of danger in that these constitute foci of infection even though carefully looked after at regular intervals. Three other dentists insist that she should retain her own teeth as long as possible, that they can be successfully treated, and that there will be no danger of absorption of toxic or infective material if they are properly looked after. Since she has limited means, the financial part of the matter enters in. I have seen the x-ray films of the teeth, and the infective process extends half to three fourths of the way along all the roots of the upper teeth. Please give your opinion in this matter.

M.D., Minnesota.

ANSWER.—The first dental consultant gives five reasons for his opinion, which if correctly based on facts are sufficient to justify his advice. The other three consultants apparently give no reasons other than the statement that the teeth can be retained for a considerable period. This would seem to warrant acceptance of the first consultant's opinion. It is undoubtedly true that dentists often have been inclined to retain teeth as long as possible without sufficient consideration of more remote effects on the health and well-being of the patient. It is also true that physicians have been too ready to condemn teeth and advise extraction without sufficient consideration of the ultimate effect on the patient's denture and health.

More specifically, it is undoubtedly true that the treatment of such a condition would be protracted and, even if all the diseased tissue could be removed and the supporting tissue restored to a normal healthy condition, its maintenance would require eternal vigilance on the part of the patient and continued assistance on the part of a skilful dentist. The ultimate cost, therefore, would probably be greater than the placing of a denture. The depth of the pockets as indicated by the x-ray films undoubtedly makes it extremely difficult to remove all the infection and obtain restoration to normal in the supporting tissues. This is not, however, impossible. It is undoubtedly true that if the diseased condition of the teeth continues, or if it periodically recurs, there will be destruction of the alveolar bone that will make the placing of a satisfactory denture much more difficult. A complete cure will, of course, not improve the esthetic appearance and this may be sufficient reason alone to justify the removal of the teeth and their replacement by a denture. Undoubtedly there is "a certain amount of danger" to the patient's health and well-being if the infection and inflammation are not entirely cured and normal conditions maintained. Considerable emphasis should be placed on this. It is by no means certain, however, that the complete cure of the mouth will relieve the coxalgia. The pyorrhea may be related to this and may not be. In this connection it might be interesting to refer to the article by Dr. George H. Thiele on coccygodynia and pain in the superior gluteal region and down the back of the thigh (THE JOURNAL, Oct. 16, 1937, p. 1271).

IODIZED POPPYSEED OIL IN BRONCHIECTASIS

To the Editor:—1. What is the present status of lipiodol in the treatment of bronchiectasis? 2. How often is the treatment given? 3. How long does the lipiodol remain in the bronchioles before being absorbed? 4. Isn't there such a thing as a sensitivity to lipiodol, an allergy developed after a few injections? If so, what are the particular symptoms that manifest themselves?

M.D., Louisiana.

ANSWER.—1. During the last six years, much has been written regarding the therapeutic use of iodized oil in patients with bronchiectasis and asthma. The reports have varied from the remarkably optimistic view (Anderson, William: *New York State J. Med.* **36**:1151 [Aug. 15] 1936) to complete denial of any value (Criep, L. H., and Hampsey, J. W.: *J. Allergy* **9**:23 [Nov.] 1937). An excellent review of the literature is given in the paper by Criep and Hampsey. Included in their records is the result of a questionnaire forwarded to 335 selected specialists who are members of allergy societies, of the American Bronchoscopic Association and of the Triological Society. Of 230 members who replied, sixty-four had experience with this form of treatment. Only one third of these were still using it for the most part as an adjunct to medical management. Little enthusiasm was displayed for this procedure by most of those who were still using it. Criep and Hampsey report the results of treatment in forty cases, only four of which showed temporary improvement. They conclude that iodized oil is of questionable value for patients with asthma.

2. Treatment is usually given on one side at a time, usually once a week or less, often depending on the condition of the patient. As many as forty treatments were given in the series quoted.

3. The amount of material absorbed from the lungs is negligible. Most of it is coughed up and expectorated or swallowed. The material may remain in the lungs as long as three or four years.

4. Sensitivity to lipiodol is not likely to develop with repeated insufflations because of the negligible amount absorbed. If symptoms of hypersensitivity occur, they will be present after the first treatment. These may be of an allergic nature either to iodine or to poppyseed oil. They consist of fever, urticaria, arthritis, asthma and occasionally acute asphyxia. At least one fatal case of iododerma has been reported (Goldstein, D. W.: Fatal Ioderma Following Injection of Iodized Oil for Pulmonary Diagnosis, THE JOURNAL, May 9, 1936, p. 1659). Other untoward reactions reported are exhaustion from convulsive coughing, acute collapse of the lung, lipoid or infectious pneumonia, traumatic bronchiectasis because of rupture of the terminal bronchioles from coughing, and pulmonary fibrosis and circulatory failure. The danger from the use of iodized oil in some patients with pulmonary tuberculosis has been indicated in a report by the Council on Pharmacy and Chemistry (Dangers of the Injection of Iodized Oils, THE JOURNAL, Dec. 3, 1932, p. 1946).

TREATMENT OF ECLAMPSIA

To the Editor:—What are the relative values of 50 per cent dextrose and magnesium sulfate solutions intravenously in eclampsia coming on three hours after delivery? Will you give me a brief outline of treatment for eclamptic convulsions in a patient never seen until in labor, with blood pressure 150 systolic, 92 diastolic, and slight edema of the ankles, convulsions occurring three hours after delivery?

M.D., Pennsylvania.

ANSWER.—While both dextrose and magnesium sulfate are administered in cases of eclampsia for the control of convulsions, the reasons for their use are not the same. Dextrose is given on the ground that there is a glycogen deficiency in women who have toxemias of pregnancy. Paul Titus believes that an insufficient carbohydrate intake in the maternal diet plus the sudden and extraordinary demands of fetal and placental growth and uterine hypertrophy bring about a glycogen deficiency in the body tissues, especially noticeable in the liver. The administration of dextrose in various concentrations is of distinct benefit in cases of preeclampsia and eclampsia.

Magnesium sulfate is given to patients with eclampsia on the ground that it controls convulsions, reduces edema and promotes diuresis, thereby eliminating the "toxins" of the toxemias. Many reports have appeared praising magnesium sulfate in the treatment of eclampsia. One of the most recent ones is by Stroganoff (*J. Obst. & Gynaec. Brit. Emp.* **44**:289 [April] 1937), who has done much to popularize the conservative treatment of eclampsia.

The treatment of postpartum eclampsia is as follows: The patient should be placed in a quiet and darkened room preferably in a hospital. A nurse or other attendant should be present constantly to see that the patient does not injure herself either

by biting her tongue, falling out of bed, aspirating vomitus or sometimes drowning from excessive pulmonary secretions. A clothespin covered with cloth will serve admirably as a mouth gag and should be placed near the patient's head. A tracheal catheter should also be close by so that mucus may be aspirated when necessary. The blood pressure should be recorded every hour and the pulse and respiratory rate counted at frequent intervals until improvement is observed. It is also important to measure the output of urine; this is best accomplished by keeping a catheter in the bladder.

As Dieckmann suggests (*Am. J. Obst. & Gynec.* **33**:165 [Jan.] 1937), to control the convulsions it is best to use a combination of drugs at the same time because it might be dangerous to give enough of one drug at a time. One-fourth grain (0.016 Gm.) of morphine is given as soon after the first convulsion as possible. This is repeated every hour until the convulsions are controlled or until the respirations drop to ten per minute. In addition, 10 cc. of a 25 per cent solution of magnesium sulfate is given intramuscularly and 5 cc. of this solution is given after each convulsion or until 30 cc. has been administered. Another useful drug is soluble phenobarbital, of which 0.3 Gm. (5 grains) should be injected subcutaneously and repeated if necessary in twelve or twenty-four hours. Still another drug which has proved helpful is chloral hydrate. Two Gm. (30 grains) is given in 100 cc. of starch water (one tablespoonful of starch to 100 cc.) by rectum and repeated as necessary.

It is important to keep the lower bowel empty and this must usually be accomplished by means of enemas. If there is oliguria, anuria, coma, tachycardia or fever, hypertonic dextrose solutions should be administered intravenously. Every six to eight hours between 500 and 1,000 cc. of a 20 per cent solution should be given, each injection lasting from thirty to forty-five minutes. Sufficient dextrose solution should be given to insure a urinary output of at least 30 cc. per hour and this should be continued until normal diuresis begins. If 20 per cent dextrose does not produce diuresis, a 30 per cent solution should be used.

As soon as the patient becomes conscious enough to take and retain nourishment she should be given water, fruit juices and fruit. As improvement continues a more and more liberal diet is added.

RULES GOVERNING DISCLOSURE OF MEDICAL EXAMINATION TO INDUSTRIAL FIRMS

To the Editor:—What is the legal status regarding physical examinations which are made for industries and for employment application records? At the present time there appears to be a move on foot whereby various industries are requesting applicants for employment to have physical examination and complete health records. These records of the examinations made as well as of the history obtained is to be in duplicate, one of the records to be furnished to the industry in question. Some of these examinations are quite extensive. I have been wondering whether or not there might be a breach of professional secrecy as well as legal liability for the physician who enters into this sort of thing and furnishes all this information to the various firms in question. I should like to have an opinion on this point.

M.D., Pennsylvania.

ANSWER.—When a law undertakes to require a physician to report to a public officer or to an employer the results of examinations of employees who have been injured or who have contracted disease in the course of employment, the legal obligation to make the report carries with it the right to do so. To the extent to which the obligation to make such a report is modified by the circumstances incidental to the injury or disease, the right of the physician to make the report varies accordingly.

Aside from any legal obligation to make a report, with a correlative right to do so, the right of a physician to report to an employer the results of an examination of an employee or of an applicant for employment varies with the circumstances under which the examination is made.

If the examining physician is in the service of the employer and if the employee or applicant knows that fact, knows the purpose of the examination and knows that a report of the results of the examination will be submitted to the employer in the ordinary course of business unless timely objection is made, and if the employee or applicant nevertheless permits the examination to be made, the consent of the employee or applicant to the proposed report to the employer would doubtless be implied in the absence of an express understanding to the contrary.

If the physician is not in the service of the employer but is one selected by the employee or the applicant, no presumption of right on the part of the examining physician to disclose the results of the examination to the employer would be implied. Before making an examination under such circumstances, the examining physician should have a clear understanding with the applicant as to the nature and purpose of the examination and as to the extent, if any, to which the examining physician is authorized by the examinee to disclose the results. If the examinee authorizes the physician to report to the employer the results of the examination, whether favorable or unfavorable to the examinee, the examinee should give written consent to the disclosure. No particular form of consent is necessary; the consent need be only such as indicates clearly an understanding on the part of the examinee and indicates his consent. Legally it is not necessary that the consent be in writing, but written consent will facilitate proof of the examining physician's right to make the disclosure, if any question arises later.

The safest and in some ways the most convenient procedure in all such cases is for the examining physician to give his report to the examinee himself or, if the examinee is a minor, to his parent or guardian, leaving it to the judgment of the examinee or his parent or guardian to submit the report to the employer or to refrain from doing so.

In any case in which a physician makes a report showing the results of his examination of any examinee, he should keep a copy of that report for future reference.

HONEY AND BEE VENOM IN ALLERGY

To the Editor:—Recently I have been approached concerning the value of honey for the relief of hay fever and other allergic conditions, especially those due to pollens. There have been short comments on its value in lay publications. Apparently only the honeycomb is of value. Is there any explanation for the mode of action, if any? What does the comb wax contain or hold in physical bond that could be of benefit? I understand that there is considerable formic acid in the finished comb and some in the honey itself. Would this acid be a factor? Is there anything in bee venom of value?

STEWART R. JONES, M.D., Suttons Bay, Mich.

ANSWER.—An analysis of American honey made by Browne of the U. S. Department of Agriculture showed that on the average it contained water 17.7 per cent, levulose 40.5 per cent, dextrose 34.02 per cent, sucrose 1.8 per cent, dextrins and gums 1.51 per cent, and ash (varying greatly from different sources) 0.15 per cent. Honey also contains several materials which vary greatly or are difficult to determine quantitatively, such as pollen grains, beeswax and some albuminoids which come either from pollen or from the honey itself. Free acid also is present and chemists have always considered it to be formic acid; but Browne states that it is largely malic acid, as the poison glands of bees do not produce formic acid. Various coloring materials of plant origin and enzymes also are found in honey.

A research of the literature shows no scientific study wherein the use of honey favorably influenced hay fever. On the other hand there are several notes of unfavorable effects. For example, Duke (Asthma, Hay Fever, Urticaria and Allied Manifestations of Allergy, St. Louis, C. V. Mosby Company, 1925, p. 215) states that patients sensitive to buckwheat may react to traces of buckwheat sometimes found in honey. Hansel (Allergy of the Nose and Paranasal Sinuses, St. Louis, C. V. Mosby Company, 1936, p. 343) states that patients with hay fever may be unable to tolerate honey because it frequently contains a great variety of pollens. Duke (*Arch. Int. Med.* **28**:151 [Aug.] 1921) reported gastrointestinal allergy after the eating of honey. Walker (*J. M. Res.* **36**:423 [July] 1917) reported asthma from honey, and Menagh (THE JOURNAL, March 3, 1928, p. 668) urticaria from the same source. Makai (*Deutsche med. Wchnschr.* **48**:257 [Feb. 23] 1922) fed honey to children who were receiving injections of horse serum and most had severe respiratory or gastrointestinal symptoms; control cases in which horse serum was not administered did not show effects from the honey.

Several articles on bee venom are in the literature. Haag and König (*Klin. Wchnschr.* **15**:1321 [Sept. 12] 1936) treated fifteen hay fever patients with injections of bee venom with good results in fourteen, eight of whom had no symptoms whatever. The injections were given subcutaneously, twice weekly, beginning with small doses with gradual increase. The treatments were given during the hay fever season and there were no reactions. Wolpe (*Wien. klin. Wchnschr.* **50**:1234 [Sept. 3] 1937; abstr. THE JOURNAL Oct. 23, 1937, p. 1409) gave injections of bee venom to a patient who had severe generalized urticaria after a bee sting; for five years no further attacks of urticaria occurred in this patient. An additional twenty-five patients with urticaria were treated with bee venom and fifteen were completely relieved and six others improved. He also treated six cases of angioneurotic edema (Quincke's disease) with bee venom with complete success. With the exception of the first patient, he does not state how long these patients remained well.

Tetsch and Wolff (Berlin letter, THE JOURNAL, Oct. 2, 1937, p. 1138) experimented with venoms and concluded that the active

substances are protein and that the composition of bee venom is similar to that of cobra and crotalin venoms. Essex, Markowitz and Mann (*Am. J. Physiol.* **94**:209 [July] 1930) experimented on dogs and concluded that bee venom has a physiologic action similar to that of histamine. This work agrees with that of Benson and Semenov (*J. Allergy* **1**:105 [Jan.] 1930), who also showed that bee venom and histamine act similarly; they also demonstrated that allergy to bee stings is entirely comparable to allergy from other protein substances. The authors state that formic acid has never been demonstrated in bee venom, that Langer attributes the poisonous action of venom to a non-volatile, protein-free organic base, that Arthus and Lyssy believe that bee venom is a proteotoxin and that Flury concludes that Langer's protein-free constituent is not a simple base but a complex one, from which Flury isolated (1) an indole derivative, probably tryptophan, (2) cholin, (3) glycerin, (4) phosphoric acid, (5) palmitic and other fatty acids, and (6) a non-nitrogenous constituent having a saponin-like action. This last derivative contains the pharmacologically active principle of bee venom.

POSSIBLE ALLERGY TO HEAT

To the Editor:—A married woman, aged 25, has been under my observation for the past year because of intense itching of the skin of the whole body. The attacks are precipitated by an unusual amount of exercise, such as sweeping, washing clothes or running short distances. Excitement or higher temperatures of the air have the same result. She describes it as coming on whenever "her blood heats up." Relief can be obtained only by lying or sitting down and resting for a variable period. During an attack the skin is flushed and shows minute red spots of a darker color than the rest of the skin. There is no resemblance to an ordinary urticarial lesion. The spots fade rapidly with rest and leave no residue. Her past history is negative except for a normal pregnancy in 1930 and the family history is negative for allergy. She is perfectly normal and well developed and is in exceptionally good condition. She takes no medicine of any kind and the diet is well balanced and adequate. There is no complaint with regard to the gastro-intestinal tract except a very occasional mild attack of indigestion quickly relieved by alkalis. I have given her cutaneous tests for a large number of the common offenders in allergic disease with no positive results and have found that a change of environment has no effect. Sedatives had no result except that drug rash developed after the administration of phenobarbital. I would appreciate your comments and suggestions.

CHARLES A. ROSE, M.D., Almond, N. Y.

ANSWER.—Organic disease such as diabetes mellitus should be ruled out first. She should have a blood sugar estimation as well as urine examination. If organic disease can be excluded, the diagnosis of physical allergy (to heat) seems most likely. This could probably be confirmed by exposure of the patient to heat (hot bath, infra-red lamp, and so on). If pruritus follows, heat sensitivity is likely.

If heat seems to be the main factor, desensitization to heat should be tried. This can usually be done by gradually increasing the temperature of baths, beginning with tepid and progressing to hot baths, lasting perhaps twenty minutes, if the patient can tolerate this. Great care should be exercised not to increase the heat too rapidly. Other ways of application of heat can be tried instead of the baths, if desired, e. g., by increasing exposure to infra-red lamps.

ARTIFICIAL INSEMINATION

To the Editor:—Is artificial insemination considered practical in cases in which the husband has been found sterile? It would seem that desirable donors would be hard to find. Is there a reliable clinic or hospital which specializes in this work?

M.D., Missouri.

ANSWER.—Artificial insemination is an unpractical and dangerous procedure. Aside from the possibility of legal involvement as well as the possibility of blackmail there must not only be considered the possibility of gonorrhea (latent) and syphilis in the donor but also one must know definitely the entire family history of the donor as well as of his antecedents. Otherwise a tendency to insanity, epilepsy and other traits may be inherited by the offspring. Of course, tuberculosis must be excluded in the donor.

One must also take into consideration the diagnosis of sterility in the male. Most of the conditions causing absence of spermatozoa in a condom specimen can be relieved by either endocrine treatment or operation in case the tubes are occluded. The main factor is the diagnosis of the underlying condition.

Another factor to be taken into consideration is that artificial insemination whether from a stranger or from the husband himself is a serious procedure and not without considerable risk. There is no practical method of sterilizing the semen without killing the spermatozoa. Normally the genital secretions of the female seem to have the power to allow the spermatozoa to proceed upward and at the same time of keeping back bacteria from infecting the uterus and parts beyond. This must be the case; otherwise infection would be frequent when it is considered that the act of intercourse is often undertaken without any aseptic precautions or even ordinary cleanliness. This preventive power of the genital secretions of the female is done away with in artificial insemination.

PAINFUL PARALYSIS AFTER ANTIRABIC TREATMENTS

To the Editor:—A white man, aged 43, 5 feet 10 inches (178 cm.) tall, weighing about 170 pounds (77 Kg.), took the antirabic treatment recommended by the North Carolina State Board of Health, consisting of twenty-one injections into the anterior abdominal wall. During the last seven injections he noticed a generalized paralysis of his extremities (not complete). This gave rise to severe pain in his extremities, so that he was confined to bed for six weeks. The pain has somewhat abated and the extremities regained some of their muscular activity. He has been treated by numerous physicians and has been given fever therapy and salicylates for the last three years. At present he complains of weakness, more severe in his left arm and leg, and of pain in all his muscles. The blood pressure is 120 systolic, 80 diastolic; and the blood count is normal. The urine is normal. The reflexes are normal on the right and hyperactive on the left. Please suggest treatment.

W. R. BEACH, M.D., Westfield, N. C.

ANSWER.—It is impossible to localize the process from the data submitted. No mention is made of any sensory abnormality or cranial nerve defect. One can guess that because of the pain and the generalized paresis of the extremities the case originally was a meningomyelitis with radicular involvement occurring with the fourteenth injection of antirabic material. It is not stated whether the substance used was vaccine, dead cord or other. Usually the patients who develop this unfortunate complication either die from two to three weeks after the onset of the cerebrospinal lesion or make an almost complete recovery within a year. If there is any improvement taking place, regardless of how little, the suggestion is made that watchful waiting and symptomatic supervision be the keynote of any treatment. If the pain is disturbing, one can consider either a chordotomy or section of a sufficient number of posterior roots to the affected extremity. Potassium iodide in the form of a saturated solution given in doses of 15 drops three times daily is suggested for trial. Large continued doses of vitamins B_1 and B_2 should be prescribed.

SODIUM HEXAMETAPHOSPHATE IN HYPERHIDROSIS AND SKIN DISEASES

To the Editor:—Please advise me as to the use of sodium hexametaphosphate in excessive sweating and certain skin conditions. Also tell me the strength preparation that is used and other details that might be useful.

M.D., Wisconsin.

ANSWER.—Sodium hexametaphosphate is a water softener yielding a slightly acid solution and possessing a strong buffer action. Applied to the skin, it tends to lessen perspiration and sebaceous secretion, drying the skin and counteracting the irritating effects of alkalis and oils (Jones, K. K.; Murray D. E., and Ivy, A. C.: Sodium Hexametaphosphate: Its Use for Certain Occupational Dermatoses, *Industrial Med.* **6**:459 [Aug.] 1937).

For hyperhidrosis of the feet, washing with tincture of green soap was followed by rinsing in a 1 or 2 per cent solution of sodium hexametaphosphate in water, and a thin film of the powdered drug was dusted into the shoes each morning. Cotton socks were worn, changed daily. Prompt control of the sweating was the result, maintained as long as the use of the drug was continued.

For dermatitis from soap, a 1 per cent solution of sodium hexametaphosphate was used for washing, no soap being allowed. The patients were instructed to sponge with the sodium hexametaphosphate solution four times a day, in the morning, at noon, on ceasing work and before retiring. In spite of continuing their work in a soap factory, they showed improvement in a few days and the irritation, which had been present for from one to five months, had disappeared in a few weeks. As long as the treatment was continued, these patients had no recurrence of the dermatitis; but when the use of the hexametaphosphate was given up, the dermatitis returned. There was no bad effect on the skin except increased dryness.

For oil acne and oil dermatitis the drug also was effective, the redness and itching clearing up first, the acne yielding more slowly. As a prophylactic, sodium hexametaphosphate was effective.

For ringworm dermatitis of the feet, sodium hexametaphosphate was useful in relieving the itching and drying the skin but was not able to cure any but the mildest cases.

The conclusions of these authors were as follows: "1. Sodium hexametaphosphate acts on the skin to form a protective coat-

ing, acid in nature, that inhibits the action of alkali on the skin. 2. Sodium hexametaphosphate, either as a dry powder or as a solution, will reduce the excretion of invisible perspiration by 50 per cent. 3. The protective film of sodium hexametaphosphate on the skin removes the irritation of soap and oil and acts as a prophylactic and cure for this condition. 4. The protective film formed by the hexametaphosphate is useful in the treatment of patients having hyperhidrosis and tricophitid infestations." The last statement can be criticized. The word tricophytid was probably a misprint. Tricophyton was meant, no doubt.

Recently Dr. Jones reported that for hyperhidrosis stronger solutions, 25 or even 50 per cent, can be used without skin irritation, and with effect in resistant cases.

BILATERAL SCIATICA

To the Editor:—A patient worked for several years on a delivery truck, delivering bags of feed and barrels weighing from 100 to 400 pounds. About a year or eighteen months ago he developed a sciatic neuritis, first in one leg, then later in both legs, which became so severe that he was forced to stop his work and receive medication. He improved and was free from pain, but when he tries to do some work his pains return. The man's physical condition is perfect otherwise, the Wassermann reaction is negative, and the urine, blood and spine are normal. He is bringing suit for compensation. I was his physician. Was this condition caused by a continuous injury due to heavy lifting and striving?

M.D., New Jersey.

ANSWER.—This patient should have the advantage of orthopedic and neurologic consultation. Pain of this type, double sciatica, might be due to an arthritis of the spine or it might be due to some intraspinal lesion such as a cord tumor or a slipped intervertebral disk. Examination of the cerebrospinal fluid should be made to ascertain whether there is an excess of protein and, if so, an injection of iodized poppy-seed oil solution into the spinal canal would be justified to determine whether a filling defect would show in the roentgenogram. The accuracy of this method of diagnosis is remarkably high. If there is a defect present an exploration of the spinal cord would be indicated.

It would be difficult to connect this man's condition definitely with his occupation although it is reasonable to presume that it was at least a contributing factor.

BURNING TONGUE

To the Editor:—What is the cause and treatment for a burning sensation on the anterior third of the tongue, bilateral? There is nothing abnormal about the tongue and no dental disorder. All clinical tests are negative; blood pressure is normal. There are no eye or ear complaints and no other objective or subjective signs.

GEORGE H. JANTZEN, M.D., Long Island, N. Y.

ANSWER.—The sensory innervation of the anterior two thirds of the tongue is by way of the fifth nerves (trigeminal). The taste component for this area goes through the lingual branches to the chorda tympani connection between the fifth and the seventh nerves (facial) and thence to a common taste center.

The burning sensation (glossodynia) described is rare but distressing. It can have several possible causes but most typically is found in women beyond the age of 50 who have a low pain threshold, often associated with cancerophobia or other complaints of a functional order. It has also been ascribed to dyspepsia, gouty diathesis, faulty diet, nervous tension, and as reflex from regional infections such as a dental abscess. If it has an inflammatory local cause (rough teeth, dentures which are porous or chemically irritating) or a systemic cause (early pellagra, pernicious anemia) the local change should be obvious. An abnormal condition of gastric acidity, either hypo-acidity or hyperacidity, has been blamed for the sensation. A nerve tract involvement might be present but it is usually unilateral. A chronic lingual tonsillitis may be diagnosed by cocainization of the nasal, sphenopalatine or Meckel's ganglion.

Recently two other causes have been described: About 10 per cent of a series of patients who had signs and symptoms from destruction and disturbed function of the temporomandibular joint had burning or prickling pain along the dorsal margin of the tongue produced reflexly by pressure of the condyle on the auriculotemporal nerve. Relief was often obtained by repositioning the lower jaw. The second cause is the electric current which is produced by the presence in fillings or dentures of metals of unlike potential. The associated symptoms and signs can include a metallic taste, acute dental nerve sensations and actual inflammation.

Since the burning in this case is bilateral, anterior, persistent and independent of a demonstrable pathologic condition, it could be psychogenic, reflex or due to a local diffuse cause. If, after reviewing the suggested causes and testing the gastric acidity, the taste sensation of the entire tongue, and so on, there then seems to be no correlation, one could tentatively treat with psychotherapy while observing further. Hydrochloric acid or alkalis, electrical stimulation, amniotin, attempts to improve the general health and reduce the strain, and reassurance have all been used empirically but the success has been only partial.

DESENSITIZATION TO HOUSE DUST

To the Editor:—I have under my care a woman who is sensitive, among other things, to house dust. Is it possible to desensitize the patient with a preparation of her own house dust?

M.D., Ind.

ANSWER.—It is not only possible but highly desirable to treat such a patient with house dust extract. The dust is collected from the home, preferably with a vacuum cleaner. If one is to obtain a potent preparation, great care must be taken to collect the dust from mattresses, pillows and furniture. This is accomplished by using an attachment on the vacuum cleaner. Usually an insufficient amount of dust is collected in this manner. It is therefore frequently necessary to add to that dust the dust obtained by sweeping the carpet.

To 20 Gm. of such dust, ether is added and allowed to stand for a few hours. The ether is then removed and the dust subjected to another extraction with ether. After the second quantity of ether is drained off the dust is thoroughly dried and extracted with 100 cc. of Coca's solution for twenty-four hours. It is filtered through filter paper and finally through a Seitz filter. It is then tested for sterility.

Usually after several injections, beginning with small amounts of this extract, the patient shows clinical improvement. A sufficient degree of desensitization can be accomplished with good clinical results but it is doubtful whether complete desensitization can ever be obtained.

PAIN IN AURICULAR NERVE

To the Editor:—A woman, aged 37, complains of a sharp stabbing pain, intermittent in timing and lasting from a minute to a minute and a half, with a total duration of from a few minutes to two or three hours. This pain has existed three years and starts about 2 cm. above and 2 cm. to the right of the suprasternal notch. It radiates over the distribution of the superficial cervical nerve and then up the great auricular nerve in front and superior to the ear. There are no areas of hyperesthesia or areas that would serve as trigger zones. The only thing that she has taken for relief is acetylsalicylic acid repeated every three hours for three or four doses. This gave very little relief and the pain gradually subsided. Physical examination and roentgenograms are negative. I would like some suggestion on diagnosis and treatment.

M.D., Idaho.

ANSWER.—Judging from the history of the location and nature of the pain, the patient may have arthritis involving the upper cervical region of the spine, as the great auricular nerve is a branch of the upper cervical nerve. In the way of treatment, an extension of the spine might be tried, which sometimes relieves pain, and light therapy would be helpful applied to the upper cervical region of the spine. There are no objections to her continuing the acetylsalicylic acid. Sometimes an alcohol injection of the nerve, if properly done, will give relief.

ORALSULIN

To the Editor:—Has "Oralsulin," used as an insulin given by mouth and sold by the Lafayette Chemical Company, Indiana, any value in diabetes mellitus?

M.D., Michigan.

ANSWER.—No oral insulin of Lafayette Pharmacal, Inc., has been accepted by the Council on Pharmacy and Chemistry, nor has Lafayette Pharmacal, Inc., requested consideration of the product by the Council.

Over eleven years ago, THE JOURNAL in discussing "Enterocap Oralsulin" (Dec. 4, 1926, p. 1935), pointed out the lack of evidence for the efficiency of orally administered preparations of insulin and pancreas. In a concluding paragraph appeared the following statements:

"In commenting editorially on the administration of insulin, THE JOURNAL as long ago as 1923 called attention to the desirability of giving wide publicity to the current limitations of this most promising therapy, since many 'just-as-good' pancreatic and antidiabetic preparations for oral use were already being put on the market. This warning is still in order, for there is yet no convincing evidence to show that any preparation taken by mouth is an effective means of producing the characteristic action of insulin."

No new evidence has been found to necessitate a revision of the statement published at that time. Recently the federal authorities charged with the enforcement of the Food and Drugs Act seized a shipment of Enterocap Oralsulin and declared the

product adulterated and misbranded. According to the government report, examination showed that the preparation contained no insulin and that the labeling bore false and fraudulent representations regarding the curative or therapeutic effects of the product (Notice of Judgment 27373, Food and Drug Administration, U. S. Department of Agriculture, issued December 1937). No products of Lafayette Pharmacal, Inc., stand accepted by the Council on Pharmacy and Chemistry.

PECTIN IN OSTEOMYELITIS

To the Editor:—Please give me information on the use of fruit pectin in the treatment of osteomyelitis. E. M. GULLATT, M.D., Ada, Okla.

ANSWER.—A report on the bactericidal action of pectin was published by Haynes, Tompkins, Washburn and Winters in the *Proceedings of the Society for Experimental Biology and Medicine* **36**:389 (June) 1937. Comment regarding this preliminary report appeared in THE JOURNAL, Oct. 14, 1937, page 1283. The report stated that 2 per cent commercial pectin added to heart-infusion broth would kill Escherica coli within twenty-four hours, while control cultures adjusted to the same p_H showed a thousandfold increase in bacterial count. It should be emphasized, however, that this in vitro bactericidal property is dependent on the acidity of the pectin broth mixture and is not apparent in neutral or alkaline mediums. The report also describes the successful results of the treatment of open wounds with pectin solution. It is too early, however, to evaluate this work, which has not yet been confirmed by other investigators.

SEA TANGLE TENTS

To the Editor:—I am enclosing a box cover and two so-called sea tangle tents, which were purchased at a local drug store on the recommendation of a midwife, to be used in the performance of an abortion by her. The midwife is now under arrest and the local authorities have asked me to write you to find out whether or not there is any legitimate use of these tents at any time. M.D., Pennsylvania.

ANSWER.—As far as is known not a single American obstetrician of good repute uses tents in his practice at the present time. Many years ago, however, tents were occasionally used to produce softening and dilatation of the cervix in cases of therapeutic abortion. Today no mention is made of tents in any American textbook on obstetrics or in medical literature. However, British obstetricians recommend tents for terminating pregnancy. In the Queen Charlotte's Textbook of Obstetrics, edition 4, page 478, appears the following statement. "The simplest method of terminating pregnancy, during the first twelve weeks, is by inserting a laminaria or sea-tangle tent into the cervical canal. Tents are sterilized by immersion in absolute alcohol for at least forty-eight hours. . . . Tents act by absorbing water, which causes them to swell considerably. . . . Sepsis is a danger."

INTRASPINAL INJECTION OF SOLUTION OF VITAMIN B_1 HYDROCHLORIDE FOR MULTIPLE SCLEROSIS

To the Editor:—A patient with multiple sclerosis for about fifteen years has received treatment in various hospitals and clinics without benefit. This patient has recently become interested in newspaper reports of the work of Dr. Elias Stern of New York on the use of vitamin B_1 in multiple sclerosis. I have been unable to obtain any authentic information on this work and would appreciate learning whether it is of real value in multiple sclerosis and, if so, the plan of treatment.

M.D., Pennsylvania.

ANSWER.—There is no convincing evidence that the injection of thiamin chloride directly into the spinal canal is of any more value in multiple sclerosis than the injection of thiamin chloride into the blood stream or indeed intramuscularly. On the other hand, it is certain that intraspinal injection of thiamin chloride is not without danger, and there is knowledge of at least one fatal result from this treatment.

CAR SICKNESS IN CHILDREN

To the Editor:—Please offer suggestions as to the treatment of car sickness in children. M.D., Minnesota.

ANSWER.—Car sickness is similar to sea sickness but is caused by the motion of a land-propelled vehicle. If the child were not taken in moving vehicles, the condition would not occur. When it is necessary to transport a child who suffers from car sickness, it might be helpful to administer a sedative such as one of the bromides in a small dose, in an attempt to mitigate the condition. Both car and sea sickness are probably types of vertigo of vestibular origin

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 28. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, Sept. 6. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: *Basic Science.* Tucson, June 21. Sec., Dr. Robert L. Nugent, Science Hall, University of Arizona, Tucson. *Medical.* Phoenix, July 5-6. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Basic Science.* Little Rock, June 4. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular).* Little Rock, June 9-10 and Nov. 3-4. Sec., State Medical Board of the Arkansas Medical Society, Dr. L. J. Kosminsky, Texarkana. *Medical (Eclectic).* Little Rock, June 21. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Reciprocity.* Los Angeles, July 11, San Francisco, Sept. 14, and Los Angeles, Nov. 16. *Written examinations.* San Francisco, June 27-30, Los Angeles, July 11-14, and Sacramento, Oct. 17-20. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: *Basic Science.* Denver, June 8-9. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver. *Medical.* Denver, July 6-8. Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, June 11. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Regular).* Hartford, July 12-13. *Endorsement.* Hartford, July 26. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Medical (Homeopathic).* Derby, July 12. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, July 12-14. *Reciprocity.* Dover, July 19. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 27-28. *Medical.* Washington, July 11-12. Asst. Sec., Commission on Licensure, Mr. Paul Foley, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 13-14. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Joint Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 4-5. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, June 28-July 1, and Oct. 18-20. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

INDIANA: Indianapolis, June 21-23. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: *Medical.* Iowa City, June 7-9. *Basic Science.* Des Moines, July 12. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 7-8. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, June 8-10. Sec., State Board of Health, Dr. A. T. McCormack, 620 S. 3rd St., Louisville.

LOUISIANA: New Orleans, June 2-4. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Augusta, July 5-6. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical (Regular).* Baltimore, June 21-24. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic).* Baltimore, June 21-22. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 12-14. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Ann Arbor and Detroit, June 13-15. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, June 7-8. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, June 21-23. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June 22-23. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, June 2-4. Director, Medical Licensure, Dr. H. S. Gove, State Capitol Bldg., Jefferson City.

MONTANA: Helena, Oct. 4. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEBRASKA: Omaha, June 8-9. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW JERSEY: Trenton, June 21-22. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 10-11. Sec., Dr. Le Grand Ward, 135 Palace Ave., Santa Fe.

NEW YORK: Albany, Buffalo, New York, and Syracuse, June 27-30 and Sept. 19-22. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 13. Sec., Dr. B. J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 5-8. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OHIO: Columbus, May 31-June 3. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, June 8-9. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Medical.* Portland, June 21-23. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science.* Corvallis, July 16 and Portland, Nov. 19. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 5-9. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, 400 Education Bldg., Harrisburg.

RHODE ISLAND: Providence, July 7-8. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 28. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 19-20. Director of Medical Licensure, Dr. B. A. Dyar, State Board of Health, Pierre.

TENNESSEE: Knoxville, Memphis, and Nashville, June 15-16. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: San Antonio, June 20-22. Sec., Dr. T. J. Crowe, 918 Mercantile Bldg., Dallas.

VERMONT: Burlington, June 15-17. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 22-24. Sec., Dr. J. W. Preston, 30½ Franklin Road, Roanoke.

WEST VIRGINIA: Elkins, July 4-6. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: *Basic Science.* Milwaukee, June 4. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Milwaukee, June 28-July 1. *Applications must be completed and on file by June 10.* Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, June 2. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the *National Board of Medical Examiners* and *Special Baords* were published in THE JOURNAL, May 21, page 1776.

Washington January Examination

Mr. Dave S. Cohn, secretary, Department of Licenses, reports the examination held by the Washington State Medical Board at Seattle, Jan. 19, 1938. The examination covered 7 subjects and included 70 questions. Thirteen candidates were examined, all of whom passed. Thirteen physicians were licensed by reciprocity and four physicians were licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School	(1935) 85.7, (1937)		87.1
Harvard University Medical School	(1935) 83.2, (1936)		86.2*
University of Minnesota Medical School	(1937)		80.8*
Creighton University School of Medicine	(1936)		79*
University of Nebraska College of Medicine	(1937)		81.1*
Cornell University Medical College	(1937)		83.1*
University of Oklahoma School of Medicine	(1937)		81.7*
University of Oregon Medical School	(1936) 85,* 87.7* (1937)		83.7*
University of Manitoba Faculty of Medicine	(1935)		85.4

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado School of Medicine	(1935)		Colorado
University of Illinois College of Medicine	(1936)		Maryland
Keokuk Medical College, Iowa	(1906)		Iowa
State University of Iowa College of Medicine	(1920), (1927), (1933)		Iowa
Tulane University of Louisiana School of Medicine	(1932)		Louisiana
University of Minnesota Medical School	(1927), (1935)		Minnesota
University of Nebraska College of Medicine	(1936), (1937), (1937)*		Nebraska
Woman's Medical College of Pennsylvania	(1930)		Penna.

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists	(1937)		N. B. M. Ex.
Northwestern University Medical School	(1934)		N. B. M. Ex.
Johns Hopkins University School of Medicine	(1927)		N. B. M. Ex.
Washington University School of Medicine	(1924)		N. B. M. Ex.

* License has not been issued.

West Virginia March Report

Dr. Arthur E. McClue, secretary, West Virginia Public Health Council, reports the oral and written examination held at Huntington, March 21-23, 1938. The examination covered 11 subjects and included 110 questions. An average of 80 per cent was required to pass. Fifteen candidates were examined, all of whom passed. Fifteen physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine	(1934)		83
Georgetown University School of Medicine	(1936)		84.1
Emory University School of Medicine	(1933)		86.5
Loyola University School of Medicine	(1935)		84.4
Rush Medical College	(1936)		87
University of Illinois College of Medicine	(1930)		87.9
University of Louisville School of Medicine	(1936)		84.9
University of Maryland School of Medicine and College of Physicians and Surgeons	(1936)		84
Duke University School of Medicine	(1935)		85.2
Western Reserve University School of Medicine	(1935)		85.5
Hahnemann Medical College and Hospital of Philadelphia	(1928)		81.4
Vanderbilt University School of Medicine	(1934)		92.3
University of Virginia Department of Medicine	(1932)		80.3
Queen's University Faculty of Medicine	(1932)		86.7
Universität Bern Medizinische Fakultät	(1935)		88.9

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Maryland School of Medicine and College of Physicians and Surgeons	(1930) Maryland, (1936)		Penna.
Ohio State University College of Medicine	(1927)		Ohio
University of Cincinnati College of Medicine	(1936)		Ohio
Western Reserve University School of Medicine	(1933)		Ohio
Jefferson Medical College of Philadelphia	(1916) (1931)		Penna., Ohio
University of Pittsburgh School of Medicine	(1935)		Penna.
Medical College of the State of South Carolina	(1935)		S. Carolina
Medical College of Virginia	(1929), (1935), (1936, 3)		Virginia
University of Virginia Department of Medicine	(1931)		Maryland

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Vermont College of Medicine	(1934)		N. B. M. Ex.

Book Notices

A Text-Book of Ophthalmic Operations. By Harold Grimsdale, M.B., F.R.C.S., Consulting Ophthalmic Surgeon to St. George's Hospital, and Elmore Brewerton, F.R.C.S., Consulting Ophthalmic Surgeon to the Metropolitan Hospital. Third edition. Cloth. Price, $6. Pp. 322, with 105 illustrations. Baltimore: William Wood & Company, 1937.

Eighteen years has elapsed since the publication of the second edition of this English textbook on ophthalmic surgery. The authors state that they "have in the past dealt too much with historical operations." In the present edition they have excised much that had "interest only in the development of operative surgery, and have tried, by leaving out unessential matter, to make a book more helpful to the student of ophthalmology." The object of the work is "to give the student, in outline, the chief ways in which the various problems have been attacked, and to leave him to adapt some one of them to his varying requirements." To this end they have adhered to their original classification of operations and have added a section on the surgery of retinal detachment.

The section on muscle surgery is rather inadequate. The indications for the various procedures are not clear and many antiquated operations have been retained, with the omission of many American adaptations of the various procedures. The use of the O'Connor cinch operation is not mentioned as useful in the surgical treatment of the phorias. The Wheeler operation on the oblique muscles is omitted and the Himmelsheim transplantation technic in the surgery of paralytic strabismus is not considered. The illustrations of the various muscle procedures are not particularly illuminating; especially is this true in the section on ptosis operations. The Blascovics operation is not mentioned. Many other procedures described since 1933 are omitted. In the section on lid surgery many infrequently used operations are described in detail with the omission of recently described procedures. The illustrations here also are difficult to follow and the indications not clear. Wheeler's tarsorraphy operation and the plastic procedures of Imre are not considered. The surgical treatment of chalazia is given nine lines and the surgery of tumors of the lids and conjunctiva is omitted. The descriptions of enucleation operations and substitutes are well done, as is the section on the lacrimal apparatus.

The chapters on intra-ocular surgery are far superior to the previous chapters. The descriptions of cataract and after-cataract surgery are clear, concise and conservative. The section on glaucoma gives a rather complete description of procedures; however, in discussing the mode of action of cyclodialysis, the authors state, after raising various questions, that "these questions must remain unanswered, except theoretically, since there are no records, to our knowledge, of any anatomical examinations." They have overlooked that both Elschnig and Kronfeld have examined and reported on microscopic sections of eyes enucleated some time after a successful cyclodialysis had been done. The treatment of complications following intra-ocular surgery is not considered by the authors. The closing chapters on surgery of the cornea and sclera are well considered, although Wiener's corneal stripping operation is omitted. The chapter on foreign bodies in the eye is good. Each chapter is preceded by a short anatomic review, which serves as an excellent foundation for the surgical anatomy of the operation to follow. The sections include a short bibliography so that original descriptions may be consulted. The text and bibliography are complete. The technic is conservative. It is a commendable work for both students and ophthalmologists alike. A comprehensive index completes the work, which from the bookmaking standpoint is good.

Die Brotnahrung des deutschen Volkes und seines Heeres in der Wirkung ihrer Eiweisse auf die Energetik des Zwischenstoffwechsels. Von Adolf Bickel, Professor der pathologischen Physiologie an der Friedrich-Wilhelms-Universität in Berlin. Paper. Price, 2.20 marks. Pp. 64. Leipzig: Georg Thieme, 1937.

The author has summarized the results of experimental studies performed in his laboratory on the nutritional value of the proteins of rye and white bread. A new technic for the study of the nutritional quality of protein was developed. Groups of male rats, each animal weighing about 200 Gm., were fed the bread or other material studied for comparison, and small amounts of a complete salt mixture, orange or lemon juice and cod liver oil. The diets were adjusted by adding small amounts of sugar, so that the nitrogen content of each food mixture was essentially identical. When rye bread and white bread were thus studied, it was found that the nitrogen balances were approximately the same (slightly positive). Animals fed 100 per cent rye bread showed the highest fecal nitrogen and the lowest urinary nitrogen. They also showed the highest ratio of carbon to nitrogen in the urine and the highest Vakat-O : N ratio (the amount of oxygen necessary to oxidize the organic substances in the urine divided by urinary nitrogen). Animals fed on bread made from mixtures of white and rye flours showed intermediate values. The author states his belief that the results indicate that the protein of rye bread has high nutritive value and that this may be due in part to the effect which it produces on the intermediary metabolism.

Love and Happiness: Intimate Problems of the Modern Woman by I. M. Hotep, M.D. With a prefatory note by Dr. Logan Clendening. Cloth. Price, $2. Pp. 235. New York & London: Alfred A. Knopf, 1938.

Dr. Logan Clendening in this book turns philosopher on the topic of women—a dangerous subject on which to philosophize for either a doctor or a philosopher. The book is written in his best mood and seems to be based on his service as father confessor to a great many inquiring damsels. He recognizes the fact that there is at this time a highly developed interest in this subject and the need for instruction. Times have changed! The new freedom for women, the coming of the motor car, the removal of the home as the center of family life, have forced many young persons to the textbooks or to the vague and fantastic information distributed in the gutter or in the club. It is important to have a book written by a physician of long experience who knows the world and its ways from the outside rather than from the laboratory, and who can write not only so that all who read may understand but also so that all will want to read. This book merits a wide circulation.

Injections continues intravasculaires en physiologie et en thérapeutique. Application au traitement des états de choc par l'adrénaline. Par le Docteur Jean Sallet. Paper. Pp. 260, with 5 illustrations. Paris: Librairie E. Le François, 1936.

The brochure deals with the prolonged intravenous injection of epinephrine from an experimental as well as a clinical standpoint. The author points out that these injections are dangerous unless they are accurately timed and dosed. Thus, for instance, doses of from 0.001 to 0.005 Gm. per kilogram per hour cause a sinking of the blood pressure by as much as 10 to 20 mm. of mercury during the duration of the injection. Doses of 0.008 Gm. per kilogram per hour, on the other hand, produce a rise in pressure. The threshold lies somewhere between 0.006 and 0.008 Gm. per kilogram. With this fact in mind, it is easy to appreciate the importance of an accurately timed infusion instrument, and such a one the author finds in the transfusion apparatus of Henry and Jouvelet. While the quantity of epinephrine solution used is likely to vary, the most commonly employed strength is 1 cc. of the solution of epinephrine (1:1,000) in 100 cc. of physiologic solution of sodium chloride, yielding a dilution of 1:100,000. One of the most important features is regulability of speed of injection, which may have to vary from 10 cc. to several liters per hour. The optimal speed seems in general to be 1 cc. per minute. Such injections are capable of producing a rise in blood pressure, which however is followed by a fall after the discontinuance of the injection. The author also observed a diminution in urinary and bile secretion, a marked contraction of the spleen, especially in a condition of splenomegaly, resulting in a considerable increase of red and white blood corpuscles in the circulation. He has observed twice among fifteen cases a considerable diminution in the resistance of the red corpuscles during the continued injection of the epinephrine. Hyperglycemia is produced more readily than is rise in arterial pressure, and both are more easily produced in the human being than in the anesthetized dog. By injection in the mesenteric vein of dogs, the author was able to demonstrate considerable destruction of epinephrine by the liver. Good therapeutic results have been secured in six of nine cases of surgical shock and in two cases of obstetric shock. The injections are in general well tolerated, except that sometimes headache or palpitation is complained of. It is necessary, however, to keep the pulse, respiration and blood pressure under constant supervision. While the method requires delicate technic and constant supervision, it may be life saving in the therapy of shock.

Treatment of Some Chronic and 'Incurable' Diseases. By A. T. Todd, O.B.E., M.B., M.R.C.P., Honorary Physician, Bristol Royal Infirmary. Cloth. Price, $3. Pp. 203. Baltimore: William Wood & Company, 1937.

The adjectives employed in the title are intended to suggest that the current therapy for these conditions is either unsatisfactory or completely ineffective. Important causes of our ineptitude of therapeutics, the author contends, are the anatomic designations of and outlook on diseases and the struggle for the unification of etiology. Anatomic localizations are correct for traumas but do not help the progress of the therapy of disease, especially chronic disease. One should not say of a patient that he has a disease of the joints but rather "this sick person has maximal symptoms in his joints." The attempt at the unification of etiology is equally obstructive to progress. There are two dicta in etiology which deter therapeutic progress: (1) the like cause, the like effect; (2) all symptoms must be referable to one etiologic event. These are unutterably stupid. The like cause, a wetting, may induce pneumonia in one man and kill him; may occasion chronic rheumatism in another and cripple him; may reduce the temperature of another with typhoid and save his life. That all symptoms must be attributed to one lesion does not hold in chronic conditions, for lesions are usually multiple. The same cause must produce different effects, depending on those subsidiary and little known dysfunctions which make up what used to be called diathesis. How unorthodox the author is may be gathered from these quotations from his chapter on diabetes mellitus:

> Insulin is not essential for the utilization of carbohydrate.
>
> "Insulin should not be used in the routine treatment of diabetes," for if insulin is administered regularly to normal men or animals and then discontinued, diabetes develops and lasts for days or weeks. This can be interpreted only as injected insulin having suppressed autogenous production.
>
> It is not my object to claim that insulin has no value in the therapy of diabetes; almost every case of diabetes in my clinic is given insulin during the early stages of treatment, but weaning from insulin is attempted at the earliest possible stage. For the comatose stages insulin is absolutely essential if life is to be saved.
>
> Writers on diabetes mostly condemn synthalin out of hand as a dangerous remedy; very few mention it with any favor. It is true that synthalin can be dangerous if administered in too large a dosage, or conjoined with an unsuitable diet; properly administered, however, it is superior to insulin in most cases, as injection is not necessary, and the chance of cure is much greater than is the case with insulin. As adjuncts to synthalin therapy bile salts should be administered daily, and patients are advised to replace a meat ration by sweetbreads once or twice weekly. Patients are also advised to replace one meat ration each week with liver, cooked according to taste.

There is hardly a chapter in this book that does not upset one's textbook notions of the subject with which it deals. There is hardly one of them from epilepsy, false phthisis, asthma and hay fever, postencephalitic parkinsonism, exophthalmic and toxic goiter, parenchymatous nephritis, duodenitis and hepatic defect, false heart disease, constipation, acute rheumatism, chorea, ulcerative colitis or chronic rheumatism to cancer that does not contain some original ideas advanced by the author. Even if only 10 per cent of the unusual therapeutic suggestions contained in this book are as claimed, the book would be worth many times its weight in gold to every physician. One cannot help wishing that the author's vision and imagination might be tempered by a more critical and scientific attitude. Neverthe-

less, if one has the misfortune of suffering from a chronic or "incurable" disease, one could hardly have a better fate than to be treated by so optimistic and enterprising a therapist as Dr. A. T. Todd.

Normale und pathologische Physiologie der Bewegungsvorgänge im gesamten Verdauungskanal. Von Prof. Dr. med. Werner Catel, Direktor der Universitäts-Kinderklinik und -Poliklinik, Leipzig. Teil 1: Methodik, Anatomie, normale Physiologie. Paper. Price, 11.50 marks. Pp. 250, with 87 illustrations. Leipzig: Georg Thieme, 1936.

This volume sets as its goal the explanation of the normal and pathologic physiology of the entire gastrointestinal tract. It begins with a consideration of the act of mastication and in turn takes up each muscular process in each part of the gastrointestinal tract. No attempt is made to explain the secretions of the tract. Any suitable method is used, although chief emphasis is laid on roentgenographic and kymographic records. Animal experiments are occasionally cited. In addition case records taken from the files of the author are used to illustrate particular points. This volume differs from the majority of similar textbooks in that considerable space is allotted to problems arising in pediatrics. This undoubtedly reflects the position of the author, as indicated in his rank. As a textbook for practitioners and students the volume will serve as a useful aid. The statements as a whole are accurate and take advanced attitudes toward the problems encountered in gastrointestinal work. Only in a few places such as in the discussion of congenital pyloric stenosis does the author allow himself to digress into a detailed discussion. Usually the points made are direct, although adequate explanation of phenomena is offered. The pharmacologic section comprises about forty pages of the text, so that only bare statements relative to the action of the leading drugs are presented. The numerous illustrations help to drive points home.

A Practice of Orthopædic Surgery. By T. P. McMurray, M.B., M.Ch., F.R.C.S., Director of Orthopædic Studies and Lecturer in Orthopædic Surgery, Liverpool University. Cloth. Price, $5. Pp. 471, with 178 illustrations. Baltimore: William Wood & Company, 1937.

This book was written by a man of excellent training and background, having inherited from Sir Robert Jones, who in turn followed Hugh Owen Thomas, the famous Orthopaedic Shrine at 11 Nelson Street in Liverpool. The author gives his preferences rather dogmatically, which is commendable. He has avoided giving details of many operative procedures which are usually confusing. Instead, he has given the methods which he has found most satisfactory in the largest number of cases. There are fine chapters on disabilities and derangements of the knee joint. There is an excellent chapter on splints and apparatus. The chapter on adhesions and ankylosis crystallizes the teachings of Sir Robert Jones. There is an interesting reference to the Baldwin operation for ankylosis of the inferior radioulnar joint. The chapters on tuberculosis are brief but satisfactory. A good description of osteoarthritis of the knee includes the author's favorite oblique osteotomy.

The British Encyclopaedia of Medical Practice Including Medicine, Surgery, Obstetrics, Gynaecology and Other Special Subjects. Under the General Editorship of Sir Humphry Rolleston, Bt., G.C.V.O., M.D. Volume V: Endoscopy of Respiratory Tract to Goitre. Cloth. Price, $12. Pp. 683, with 145 illustrations. London & Toronto: Butterworth & Co., Ltd., 1937.

From endoscopy through goiter marks the progress of the fifth volume of the British Encyclopaedia of Medical Practice. Among the leading subjects are epilepsy, eruptions, the eye, food and the gallbladder. Special interest attaches to a fine article on etiquette and ethics in medical practice and to deformities and diseases of the foot. This volume, like the others in this series, is handsomely published and profusely illustrated and represents essentially a series of short monographs, written from the British point of view. The fact that the British pharmacopeia is the basis of all therapeutic discussions tends to diminish somewhat the value of the work for the American reader. The discussion on epilepsy is by the well known British neurologist W. Russell Brain (rather strange that two of the greatest neurologists should have been named Brain and Head). Notwithstanding the up-to-date character of the book, it contains no reference to the study of the brain in epilepsy by encephalography. This article seems to be essentially a routine discussion of the subject without much that is stimulating or new. Especially interesting in this book is the section on gassing and poison gases in war. This is a subject which is today concerning the British medical profession far beyond the degree of interest aroused previously. This article, which is written by Lieut. Col. L. T. Poole of the Royal Army Medical College, is one of the most succinct and complete discussions of this kind yet made available to the general reader.

Textbook of Gastroscopy. By Norbert Henning, Professor of Medicine in the Municipal Hospital, Fürth. Translated by Harold W. Rodgers, F.R.C.S., St. Bartholomew's Hospital, London. Cloth. Price, $2.75. Pp. 86, with 33 illustrations. New York & London: Oxford University Press, 1937.

The German edition of Henning's textbook was reviewed in THE JOURNAL Dec. 28, 1935. Rodgers' translation is excellent. Unfortunately he has not changed such passages as are now obsolete; e. g., the recommendation of the rubber sponge, a device which in the meantime has proved to be dangerous. However, the small volume will be welcome to internists and surgeons who want to acquaint themselves with the sudden development of a method which seems to have become an important asset to the medical armamentarium. The gastroenterologist and the gastroscopist will be in need of one of the more detailed textbooks on this subject. Rodgers, in his preface, describes the rapid development of gastroscopy in an amusing way. "With the invention of the flexible gastroscope there came an awakening in gastric disease, and the German clinics have had visitors from all parts of the world go to them for their first step in gastroscopy. The English invasion began toward the end of 1934, and since then several young surgeons and fewer young physicians have, ignoring Lord Horder's pronouncement that gastroscopy was repugnant to the English character [sic], traveled to Leipzig . . . and have come back with knowledge, enthusiasm, and some, maybe, have even smuggled the conveniently flexible instrument through the customs strapped to their legs and hidden by their trousers." This, indeed, is history of medicine. However, the young American physician, traveling through Europe, should be warned to consider the custom officials of New York to be smarter than those of London. Rodgers also states in his preface that he has never met a gastroscopist who has had the instrument passed on himself. This experience is not shared by the reviewer.

Muir & Ritchie's Manual of Bacteriology. Revised by Carl H. Browning, M.D., LL.D., D.P.H., Gardiner Professor of Bacteriology, University of Glasgow, and Thomas J. Mackie, M.D., D.P.H., Irvine Professor of Bacteriology, University of Edinburgh. Tenth edition. Cloth. Price, $7.25. Pp. 996, with 218 illustrations. New York & London: Oxford University Press, 1937.

The original publication of this book occurred in 1897. Sir Robert Muir has withdrawn from participation in this revision so that the original authorship has now come to an end. This edition has been added to especially in the chapters on filtrable viruses. The nomenclature is out of date and is not in keeping with present accepted views. The physiologic and immunologic portions are rather superficially handled. There are numerous omissions of important work during the past five or six years in many of the fields. The plan of putting the colored plates in the front and all the bibliography in the back of the book is an awkward arrangement. The book leaves the impression of being superficial and skimming over a large amount of material without a serious consideration of any one subject.

How to Feed Young Children in the Home. By Mary E. Sweeny and Dorothy Curts Buck. Paper. Gratis. Pp. 68, with illustrations Detroit: The Merrill-Palmer School, 1937.

This is a brief review of the values in ordinary foods, sufficiently comprehensive for the use of the mother in the home, plus some good advice about children's diets, and many excellent recipes for dishes suitable for feeding children. It is published under the egis of the well known Merrill-Palmer School, Detroit, with the aid of a grant from the Irradiated Evaporated Milk Institute. There is a heavy emphasis in the recipes on irradiated evaporated milk. While there is no overt suggestion that bottled fresh milk is inferior, that impression is subtly conveyed. Otherwise there is no objection to the booklet, which should prove useful, especially to those mothers who must rely

on free educational material. Since the sponsorship of the irradiated evaporated milk interests are definitely and openly stated in the booklet, it can be weighed on its own merits with full knowledge of its source. This is a fundamental requirement for educational acceptability of material from commercial sources or developed with commercial aid.

Modern Dietary Treatment. By Margery Abrahams, M.A., M.Sc., Dietitian to St. Bartholomew's Hospital, London, and Elsie M. Widdowson, B.Sc., Ph.D., Biochemist to King's College Hospital, London. Cloth. Price, $3.25. Pp. 328. Baltimore: William Wood & Company, 1937.

This book gives a concise and informative review of the principles of nutrition. The first part discusses briefly the food essentials and their importance to the human body. The second part deals with the diseases in which dietary treatment is necessary. Examples of diets are given for patients having these diseases, followed by recipes that offer suggestions of how to carry out these diets with a variety of foods and food combinations. The tables of analysis of the English foods, both raw and cooked, add merit to the book. On the whole this volume should be of practical value as a reference book to students of nutrition.

Algunas de as impresiones y notas de mi ultima estada en Norte America. Por el Doctor L. Lopez Villoria. Paper. Pp. 38, with 7 illustrations. Caracas: Academia nacional de medicina, 1937.

This book is a report of the author to the Academia Nacional de Medicina of Caracas on his personal impressions and professional observations during his postgraduate studies in the United States. It shows the large field covered in bronchoscopy and esophagoscopy in the courses given by Chevalier Jackson, Chevalier L. Jackson and some of their most prominent pupils at the University of Pennsylvania. The clinical and surgical work which is performed during the courses, the lectures delivered and the technics shown and other demonstrations are described in detail. The book shows also the development of ophthalmologic and otorhinolaryngologic surgery by American specialists. Special references are given to work and technics of Dr. Ramón Castroviejo of the Columbia Presbyterian Hospital and Simon L. Ruskin of the Harbor Polyclinic of New York. Reference is made also to surgical technics shown and explained in some scientific centers in the United States by well known foreign surgeons. The book is of value especially for specialists in bronchoscopy, esophagoscopy, ophthalmology and otolaryngology.

A Textbook of Medicine. By American Authors. Edited by Russell L. Cecil, A.B., M.D., Sc.D., Professor of Clinical Medicine, Cornell University Medical College, New York City. Associate Editor for Diseases of the Nervous System: Foster Kennedy, M.D., F.R.S.E., Professor of Neurology, Cornell University Medical College. Fourth edition. Cloth. Price, $9. Pp. 1,614, with 42 illustrations. Philadelphia & London: W. B. Saunders Company, 1937.

The first edition of this book was published in 1926 and the third printing in 1933. The fourth edition provides extensive revision, reediting and resetting. Six contributors have died since the publication of the first edition. In the present edition a number of new topics have been introduced. Moreover, the editors and publishers have decided to establish a retiring age for contributions so that new authors and new treatises appear for many subjects discussed by other authors in previous editions. The work is so authoritative, so complete and so thorough that it may be generally recommended as one of the best available works in its field.

Fundamentals of Anatomy. By Carl C. Francis, A.B., M.D., Senior Instructor in Anatomy, Laboratory of Anatomy, Western Reserve University, Cleveland, Ohio. Cloth. Price, $2.75. Pp. 320, with 176 illustrations. St. Louis: C. V. Mosby Company, 1937.

This is an exceedingly brief survey of human anatomy. The illustrations are excellent. Most of them have been drawn from preparations in the Hamann Museum in Cleveland. Since the brief text includes histology, the anatomy of the nervous system and surface anatomy, as well as the gross anatomy of the rest of the body, it is evident that the account of each structure is exceedingly brief. Five lines are devoted to the hypophysis, seven to the frontal bone, nine to the portal vein, and a trifle over two pages to the entire small intestine.

Clinical Endocrinology. By Samuel A. Loewenberg M.D., F.A.C.P., Clinical Professor of Medicine, Jefferson Medical College, Philadelphia. Foreword by Hobart A. Reimann, M.D., Professor of Medicine and Clinical Medicine, Jefferson Medical College, Philadelphia. Cloth. Price, $8. Pp. 825, with 194 illustrations. Philadelphia: F. A. Davis Company, 1937.

During the past few years each of the leading publishers in the field of medicine has made available a work on endocrinology. The author of this volume is clinical professor of medicine in Jefferson Medical College in Philadelphia. The book follows established lines and is based on an extensive bibliography from which the author has chosen wisely. In his considerations of the various glands he follows the outline of history, anatomy, physiology, pathology and the diseases affecting the gland in question. The concluding chapters concern undetermined endocrine activities and the significance of laboratory observations. The book is in every sense a practical one and should be useful to the general practitioner as a reference work.

The Mayo Clinic. By Lucy Wilder. Second edition. Cloth. Price, $1.50. Pp. 96, with illustrations by Ruth Barney. New York: Harcourt, Brace & Company, 1938.

Printed first in 1936, this new edition is handsomely republished and illustrated with charming drawings and pictures; altogether a most satisfactory book.

Miscellany

TRANSFERRING CASE RECORDS TO FILM SOLVES STORAGE PROBLEM

SIXTEEN THOUSAND RECORDS STORED WHERE TWO HUNDRED WERE STORED BEFORE

STELLA FORD WALKER, CHICAGO
Chief Medical Statistician and Medical Librarian, Cook County Hospital

In the comprehensive program of improvement and modernization now going forward at Cook County Hospital, the transferring of case records to film in the medical record room is attracting considerable interest.

Every hospital sooner or later is faced with the problem of finding space for the steadily expanding file of patients' histories. Cook County Hospital is no exception to the rule, since 50,000, 60,000 and now 70,000 new histories must be accommodated annually. Four basement rooms, in addition to the record room proper, proved to be inadequate and unsatisfactory. Histories damaged by dust and humidity from overhead water pipes or grown fragile with age were destroyed to make room for the constant stream of new histories. The medical staff, recognizing the need for permanent storage of records, talked of constructing a building for the voluminous files. The adoption of a film storage plan dramatically changed the entire picture.

The transfer of written and printed material to film is not in the experimental stage. The Library of Congress has photographed newspapers on 35 mm. film. Many banks now keep a photographed record of canceled checks before returning the checks to their customers. Insurance companies and many industrial companies are using film storage. State and federal departments are finding a solution to the problem of providing permanent storage of important public documents. If Cook County Hospital is the first in the hospital field to adopt this modern method for the storage of medical records, this pioneering is justified because of the bulk of records handled with a limited personnel.

At first questions were raised as to the feasibility of transferring records to film, but the saving in space and filing time

The author wishes to acknowledge the cooperation of Commissioner Frank Bobrytzke, Chairman of the Hospital Committee, and Mr. Anton C. Negri, Efficiency Engineer.

The Cook County Hospital Medical Staff, especially the Committee on Medical Hospital Records, has been most helpful in supporting this and other new procedures for the improvement of Record Room service.

was so desirable that further study of the plan seemed imperative. The many advantages of the method now dominate the picture.

The records are photographed page by page on 16 mm. film and stored on receiving spools similar to those used for 100 feet of motion picture film. The fear of creating a fire hazard was the first objection to be eliminated. The acetate film used will burn as readily as paper but not any more freely, and it is not

Fig. 1.—One drawer of name cards size 5 by 8 inches may be replaced by one small carton of 100 foot 16 mm. film.

explosive. Being stored in small filing cabinets, the film will be less of a fire hazard than the bulky paper records. No special care of the film in storage is required.

The legality of the photographed record is easily established. As long as an original record is available, its production in court can be demanded. When the original is destroyed, the photograph is acceptable as evidence. "The eye of the camera don't lie." (From opinion rendered by Chief Justice Edward Smith, *Tobin* v. *Knaggs,* June 9, 1937.) As a matter of fact the continuous film, recording one page after another, cannot be changed without detection. Sheets cannot be removed as from a collection of separate pages, and the microphotographs cannot be modified by the use of matching ink and carefully selected pen.

A roll of 16 mm. film (stored in a small carton, as shown in figure 1) is substituted for a drawer containing a double file of name cards size 5 by 8 inches (12 by 20 cm.). An alphabetic file once transferred to film will never again get out of order, no matter how many people have occasion to consult the file.

The work of photographing the records is offset by the elimination of the work of transferring bulky records and by the elimination of trips to distant vaults—the small spools of film being readily stored in the main record room.

Physicians sitting down to read the photographed records for the first time remark on the clearness of the record and the ease with which they can pass over the pages in which they have no interest and find the particular information they are looking for.

The photographing of the records is made entirely mechanical by means of a special camera enclosed in a photographing chamber. As a page is fed into the slot provided, it passes over a roller geared to synchronize with the movement of film past the camera lens. There is no waste of film; long and short pages follow closely on one another. The fixed distance between camera and record sheets and the fixed amount of illumination provided within the photographic chamber make it possible to use film inexpensive as compared with that made for the camera which must accommodate to a wide range of distances and a variety of lighting conditions. The photographing is done as rapidly as the pages can be fed over the roller. The machine can accommodate a speed of 3,000 sheets an hour. An operator has acquired a satisfactory rate of speed who feeds 1,500 sheets an hour accurately without over-riding or picking up more than one sheet at a time. The film is removed from the camera on 100 foot receiving spools, which are sent to the company's plant for developing.

The projector has a ground glass screen so arranged as to carry a "life-sized" reproduction of the photographed pages (8½ by 11 inches at Cook County Hospital). A small hand crank spins the record to the desired page, guided by serial numbers thrown on the screen to the right of the pages.[1]

The ordinary transfer case, holding 200 records of letter-sized paper, will hold 16,000 records on film with each receiving spool protected by a paper carton. However, a special cabinet has been ordered at Cook County Hospital; the drawers will be of the proper depth and will carry three rows of the film rolls. It is comparatively an inexpensive matter to provide locks and fireproof cabinets if they seem advisable.

Hospital inspectors, seeing the method in use, have recognized the advantages of this method over that of storing the original bulky records.

One advantage not at first anticipated, but of major importance, is the inspiration given toward obtaining better records in anticipation of permanent storage. The first intern to see the photographed records at Cook County Hospital said "We should get more on a page and be more careful of what and how we write." Each physician and nurse seeing the projected records expresses similar reactions, and now a number of committees are working in this hospital to select better forms for histories and to supervise the production of records worthy of permanent storage.

The question of how long the original records should be kept before being photographed for film storage is one for the individual hospital to decide; the answer depends on the storage space available, the percentage of records in the files of a given year which may be required for readmitted patients and the protection afforded the original record by folders, closed boxes, dustproof vaults or other means.

By the building of a simple darkroom over the projection table, a means will be afforded for obtaining an imprint from the ground glass of the projector of any page or pages required for any purpose. I am told that if the sensitized paper is purchased in gross lots the cost of obtaining an enlargement will be in the neighborhood of 1 cent a page. Thus if a patient returns to the hospital his record may be reproduced and sent to the ward if the doctor does not find it convenient to get the

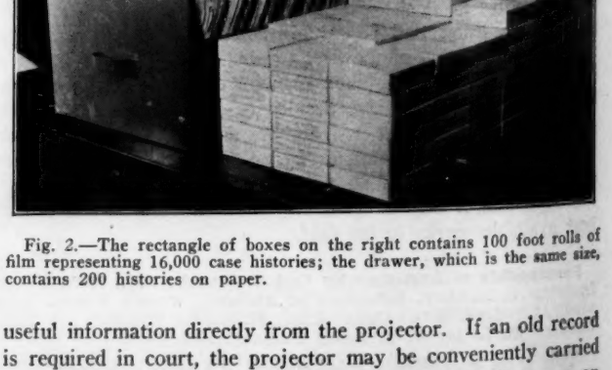


Fig. 2.—The rectangle of boxes on the right contains 100 foot rolls of film representing 16,000 case histories; the drawer, which is the same size, contains 200 histories on paper.

useful information directly from the projector. If an old record is required in court, the projector may be conveniently carried into court, so that the film may be projected there, or an enlargement may be prepared. It is predicted, however, that with government departments adopting the method for important documents it will not be long before suitable projectors will be available for court use.

1. The equipment used at Cook County Hospital is supplied by Recordak Corp., a subsidiary of the Eastern Kodak Company. A more detailed description of the equipment and other information may be obtained directly from the companies supplying such equipment.

The cost of film is the main item of expense, the other equipment being merely rented for the required time. It may suffice here to say that the cost will compare favorably with the cost of providing folders and suitable filing cases. At Cook County Hospital a WPA project provides the workers necessary for the photographing. With this advantage on the side of the new method, film storage costs about half as much as folders and file cabinets for the bulk of records eliminated.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Drugs: Pamphlets Not Accompanying Drug as Evidence of Wilful Misbranding.—The defendant, Mrs. Adah Alberty, was convicted under the federal food and drugs act of 1906, as amended, of shipping in interstate commerce certain wilfully misbranded preparations. The preparations were "Alberty's Calcatine," labeled to be used for acidosis, indigestion, "calcium starvation," diarrhea, brain irritation, and a number of other afflictions; "Alberty's Liver Cell Salts" for "ailments marked by excessive secretions of bile and derangement of the liver, gravel, sand in the uterine [sic], biliousness, headache with vomiting of bile, bitter taste, diabetes, trouble arising from living in damp places, malaria, gout"; "Alberty's Lebara Organic Pellets" for acidosis, dormant liver, and other ills; and "Alberty's Anti-Diabetic Vegetable Compound Capsules." The last-named preparation purported, apparently, to be effective only for diabetes. The trial court fined the defendant $1,000 and assessed against her the costs of prosecution, which amounted to $1,499.80. The defendant then appealed to the U. S. circuit court of appeals, ninth circuit.

At the trial the government introduced in evidence certain pamphlets written by the defendant and dealing with the necessity for and the use of the preparations charged to be misbranded. These pamphlets were "Calcium, the Staff of Life," "Alberty's Treatment for Diabetes," and "The Hourglass." They had been shipped in interstate commerce and generally distributed but had not been sent with or appended to the preparations. The defendant contended that the trial court erred in admitting this evidence. In the opinion of the appellate court, however, this evidence was not irrelevant. The issue presented was whether the claims on the labels of the preparations were false and fraudulent. These pamphlets were properly admissible to show the defendant's knowledge as to the truth or falsity of the claims on the labels. Obviously, if false and extravagant claims as to "Calcatine," for example, were made in a pamphlet spread abroad by the defendant, it would be persuasive evidence that similar claims on the labels of the preparation were false and fraudulent. The court could find nothing in the record to warrant interference with the judgment of the trial court and consequently affirmed that judgment.—*Alberty v. United States, 91 F. (2d) 461.*

Physical Examinations: Rights of Defendant in Personal Injury Action.—The plaintiff sustained an injury to his back, which he attributed to the negligence of the defendant company. In a suit to recover damages for the personal injury sustained, instituted in the United States district court for the eastern district of New York, the defendant company entered a motion for an order directing the plaintiff to present himself at the office of a physician designated by the company for a physical examination, including the taking of roentgenograms.

Section 306 of the Civil Practice Act of New York provides that in an action to recover damages for personal injuries, the "court, by order, shall direct that the plaintiff submit to a physical examination by one or more physicians or surgeons to be designated by the court or judge," if the defendant presents satisfactory evidence to the court that he is ignorant of the nature and extent of the injuries complained of. This section, said the court, is quite definite and does not permit the defendant to designate the examining physician. Such a designation has to be made by the court or judge. The plaintiff argued that, while the court was authorized to appoint a physician and to require the plaintiff to submit to a physical examination, the Civil Practice Act does not authorize the taking of roentgenograms. While it is true, the court said, that at the time the act was passed there were few roentgenograms taken as compared with the present day, nevertheless a physician in the treatment of a bone injury such as was claimed by the plaintiff would be remiss in his duty and guilty of negligence if he did not take roentgenograms. Furthermore, the decisions of the New York state courts are in accord that roentgenograms are proper in a case like the present one.

The defendant further contended that only the defendant's attorneys should receive a copy of the report of the examining physician. But, the court pointed out, a law suit should not be a game of chance; one side should not have an advantage over the other. If the defendant is entitled to a copy of the report, so also is the plaintiff.

The court therefore entered an order appointing a disinterested physician to make the physical examination and ordered the plaintiff to submit to the examination, including a roentgenogram if the examining physician deemed it necessary. To protect fully the rights of the plaintiff and the defendant, the court authorized the plaintiff's and defendant's physicians to be present at the examination conducted by the physician designated by the court. Since the defendant made the application for the appointment of the examining physician, the expenses incident to that examination, the court thought, should be borne by the defendant. In case the examining physician and the defendant were unable to agree on a proper fee, the court indicated that it would fix that fee.—*Mitchell v. Pure Oil Co., 20 F. Supp. 1021.*

Workmen's Compensation Acts: Jurisdiction of Industrial Commission Over Medical Fees.—The plaintiff, a physician, had on several occasions been employed by the district manager of the defendant company to take care of injured employees. In this case the plaintiff, having been called to treat an employee, was advised by the district manager to "do whatever is necessary to take care of him." The company, however, refused to pay for the treatment and the plaintiff sued at law for his fee. From a judgment for the physician, the company appealed to the Supreme Court of South Dakota.

The company contended that the physician had no right to sue at law, that since it was operating under the workmen's compensation act the industrial commissioner had exclusive jurisdiction in the matter. The Supreme Court, disagreeing with this contention, pointed out that, while as between employer and employee the remedy under the workmen's compensation act is exclusive, physicians are neither employers nor employees within the meaning of the act. The general rule is thus stated in *Ross v. Austin Drilling Co., 131 Kan. 824, 293 P. 757:*

> The Compensation Act, therefore, does not represent a contract either between the physician and the injured workman, or between the physician and the employer of the workman. There is nothing in the Compensation Act which prevents either an employer or employee from making a contract with the physician for services, as such contracts are usually made, and a contract when so made with the physician is free from the terms of the Compensation Act, unless, of course, that act is specifically made a part thereof.

The provision in the workmen's compensation act that "fees of . . . physicians for service under this article shall be subject to the approval of the industrial commissioner" had no reference, in the opinion of the court, to a contract of employment between a physician and an employer.

The company finally contended that the evidence failed to disclose any contract between it and the plaintiff. The court was satisfied, however, that the facts and circumstances disclosed by the evidence were sufficient to justify the jury in finding a mutual intention on the part of the parties to contract. The plaintiff had been employed by the company to treat its employees on prior occasions; under the workmen's compensation act there was a duty on the company to furnish its injured

employees with medical services, and the district manager called the plaintiff and told him to do whatever was necessary to take care of the injured employee. Clearly, in the opinion of the court, this evidence was sufficient to justify the jury in finding an intention on the part of the defendant to pay the plaintiff for his services.

The judgment in favor of the physician was accordingly affirmed.—*Hannon v. Interstate Power Co. (S. D.), 275 N. W. 358.*

Malpractice: Release of Unfounded Claim Against Alleged Tort Feasor as Bar to Action Against Physician.—The plaintiff was accidentlly shot in her leg and the defendant physicians, called to attend her, amputated the leg. Subsequently, she executed a written release specifically releasing the person who shot her "from any and all claims, damages or liabilities thereunder whatsoever." In a suit against the defendant physicians wherein she alleged that they negligently and needlessly amputated her leg, the physicians offered the release as a defense. The trial court ruled out a reply interposed by the plaintiff to the effect that in executing the release she had no intention of releasing her cause of action against the physicians and that she signed the release on the representation of the attorneys of both parties that the release in no manner impaired her right to proceed against the physicians. Judgment was given on the pleadings for the physicians and the plaintiff appealed to the Supreme Court of Minnesota.

The law is settled in Minnesota, said the court, that where a person is injured by the wrong or neglect of another and is not negligent in the selection of a physician to treat him, the wrongdoer is liable for all the proximate results of his own act, although the consequences of the injury would have been less serious than they proved to be if the physician had exercised proper professional skill and care. Under this rule of law, the person who shot the plaintiff could have been held liable for the alleged negligence of the defendant physicians. The rule is equally well settled that a release by the injured person of his right to recover damages from the original wrongdoer operates as a bar to an action for malpractice against a physician, and this is so even though the person attempted to be charged as the original wrongdoer and with whom the settlement has been effected was not legally liable. For these reasons, the court concluded that the release was a complete bar to the plaintiff's action against the physicians for malpractice.

The judgment for the defendant physicians was affirmed.—*Ahlsted v. Hart (Minn.), 275 N. W. 404.*

Hospital Associations: Liability to Hospital that Furnishes Services to Members.—An Oregon law authorizes the formation of corporations empowered to enter into contracts "with individuals, families, employees, associations, societies or with employers for the benefit of employees for the furnishing of medicine, medical or surgical treatment, nursing, hospital service, ambulance service, dental service, burial service, or any or all of the above enumerated services or any other necessary services contingent upon sickness, accident, or death." Such a corporation is required to file a surety bond in the sum of $10,000 as a guarantee "of the due execution of the contracts to be entered into by such corporation . . . in accordance with the provisions of this act." The defendant, the Employees' Hospital Association, duly executed the required bond. It thereafter entered into a contract with the relator, the Hood River Hospital, whereby the hospital agreed to furnish hospital accommodations and services to sundry individuals who were beneficiaries of the Employees' Hospital Association. The association failed to pay the hospital for rendering these services and the present proceedings were instituted by the state, on the relation of the Hood River Hospital, against the association and the surety company to subject the bond filed by the association to the payment of the amount due the hospital. The trial court gave judgment for the plaintiff and the surety company appealed to the Supreme Court of Oregon.

The surety company contended that the protection of the bond extended no further than the beneficiaries of the association and not to a hospital that actually furnishes the services that the association was organized to render. It is obvious, the court said, that in requiring a bond the statute looks to the protection of persons who become members of the association in order to obtain the benefit of a sort of hospital and medical insurance. Its purpose was to guarantee the fulfilment of the association's engagements in this respect. The association has no hospital of its own nor is it authorized to practice medicine. It therefore delegated to other agencies the actual discharge of the functions with which a state law had invested them. That being so, if these agencies are not compensated under their contract with the association it is reasonable to assume that they will cease to undertake the performance of these services, the association will be wholly without the means to carry out its agreement with its members and their employers, and the latter would lose the benefits which they hoped to gain by joining the association. The language of the statute, the court continued, is broad enough to include contracts which the association makes with others for the furnishing of hospital and medical services to the association's members. Entering into such contracts is assuredly doing a hospital business, and it is such contracts that are required to be guaranteed by the statute. The court was therefore of the opinion that the trial court properly gave judgment for the plaintiff. That judgment was affirmed.—*State ex rel. Hood River Hospital v. Employees' Hospital Assn. (Ore.) 73 P. (2d) 693.*

Society Proceedings

COMING MEETINGS

American Medical Association, San Francisco, June 13-17. Dr. Olin West, 535 North Dearborn St., Chicago, Secretary.

American Academy of Pediatrics, Del Monte, Calif., June 9-11. Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill., Secretary.

American Academy of Tuberculosis Physicians, San Francisco, June 17-18. Dr. Arnold Minnig, 638 Metropolitan Bldg., Denver, Secretary.

American Association of Industrial Physicians and Surgeons, Chicago, June 6-9. Dr. Volney S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Association of Medical Milk Commissions, San Francisco, June 13-14. Dr. Paul B. Cassidy, 2037 Pine St., Philadelphia, Secretary.

American Dermatological Association, Del Monte, Calif., June 9-11. Dr. Fred D. Weidman, 36 Hamilton Walk, Philadelphia, Secretary.

American Gynecological Society, Asheville, N. C., May 30-June 1. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.

American Heart Association, San Francisco, June 10-11. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.

American Medical Women's Association, San Francisco, June 12-14. Dr. Helen A. Cary, 1634 N.E. Halsey St., Portland, Ore., Secretary.

American Ophthalmological Society, San Francisco, June 9-11. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.

American Pediatric Society, Bolton Landing, N. Y., June 9-11. Dr. Hugh McCulloch, 325 North Euclid Ave., St. Louis, Secretary.

American Proctologic Society, San Francisco, June 11-13. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.

American Psychiatric Association, San Francisco, June 6-10. Dr. W. C. Sandy, State Education Bldg., Harrisburg, Pa., Secretary.

American Radium Society, San Francisco, June 13-14. Dr. F. W. O'Brien, 465 Beacon St., Boston, Secretary.

American Rheumatism Association, San Francisco, June 13. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.

American Society of Clinical Pathologists, San Francisco, June 9-11. Dr. A. S. Giordano, 531 North Main St., South Bend, Ind., Secretary.

American Urological Association, Quebec, Canada, June 27-30. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.

Association for the Study of Allergy, San Francisco, June 9-10. Dr. J. Harvey Black, 1405 Medical Arts Bldg., Dallas, Texas, Secretary.

Association for the Study of Internal Secretions, San Francisco, June 13-14. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.

Connecticut State Medical Society, Groton, June 1-2. Dr. Creighton Barker, 258 Church St., New Haven, Secretary.

Maine Medical Association, Bar Harbor, June 26-28. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.

Massachusetts Medical Society, Boston, May 31-June 2. Dr. Alexander S. Begg, 8 The Fenway, Boston, Secretary.

Medical Library Association, Boston, June 28-30. Miss Janet Doe, 2 East 103d St., New York, Secretary.

Minnesota State Medical Association, Duluth, June 29-July 1. Dr. E. A. Meyerding, 11 West Summit Ave., St. Paul, Secretary.

National Tuberculosis Association, Los Angeles, June 20-23. Dr. Charles J. Hatfield, 7th and Lombard Sts., Philadelphia, Secretary.

New Mexico Medical Society, Santa Fe, June 6-8. Dr. L. B. Cohenour, 219 West Central Ave., Albuquerque, Secretary.

Rhode Island Medical Society, Providence, June 1-2. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.

Western Branch of American Public Health Association, Portland, Ore., June 6-8. Dr. William P. Shepard, 600 Stockton St., San Francisco, Secretary.

West Virginia State Medical Association, White Sulphur Springs, July 11-13. Mr. Joe W. Savage, Public Library Building, Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

32: 339-494 (March) 1938

Familial Involvement of Nervous System by Multiple Tumors of Sheaths and Enveloping Membranes: Hereditary, Clinical and Pathologic Study of Central and Peripheral Neurofibromatosis. O. A. Turner and W. J. Gardner, Cleveland.—p. 339.

*Carcinomatosis of Meninges of Spinal Cord and Base of the Brain, Without Involvement of Parenchyma, Secondary to Carcinoma of the Lung. B. J. Alpers and O. N. Smith, Philadelphia.—p. 361.

Neoplasia in Rabbits Following Administration 1:2:5:6-Dibenzanthracene. H. Burrows and E. Boyland, London, England.—p. 367.

Intranucleolar Bodies in Normal and Neoplastic Human Tissue. R. C. Page, J. F. Regan and W. C. MacCarty, Rochester, Minn.—p. 383.

Agglutination Tests in Study of Tumor Immunity, Natural and Acquired. T. Lumsden, London, England.—p. 395.

Influence of Calories Per Se on the Growth of Sarcoma 180. F. Bischoff and M. Louisa Long, Santa Barbara, Calif.—p. 418.

*Immunization Against Neoplasm: Its Effect on Nitrogen Metabolism of the Host. R. H. Oster and W. T. Salter, Boston.—p. 422.

Glycolysis in Tumor Tissue: II. Effect of Certain Sugars on the Hydrogen Ion Concentration and Lactic Acid Content of Walker Sarcoma 319. Frances F. Beck, Ruth Musser, C. J. Carr and J. C. Krantz Jr., Baltimore.—p. 434.

Tumor Growth in Mice One-Fifth Saturated with Deuterium Oxide (Heavy Water). H. G. Barbour and E. Allen, with collaboration of W. U. Gardner, L. C. Strong, J. B. Hamilton, A. Kirschbaum and P. H. Barbour Jr., New Haven, Conn.—p. 440.

Agent and Soil in Experimental Carcinogenesis. W. H. Woglom, New York.—p. 447.

Observations on Intravenous Administration of Colloidal Solutions of Carcinogenic Hydrocarbons in Rabbits. G. V. LeRoy, E. V. Kandel and A. Brunschwig, Chicago.—p. 449.

Metastatic Carcinomatosis of Spinal Meninges.—Alpers and Smith cite a case of primary carcinoma of the lung with metastatic carcinomatosis limited to the meninges of the spinal cord and the base of the brain, particularly the pons. It is suggested that the carcinoma cells extended directly from the lung, along the lymphatic spaces in the intercostal nerves, to the lymphatic spaces of the posterior roots and ganglions of the posterior roots to the spinal meninges.

Immunization Against Neoplasm.—The observations of Oster and Salter confirm the correlation reported by Dodds between immunity to inoculated cancer and a biochemical response to x-rays. Under favorable conditions the two associated phenomena may be induced at will by a standard artificial technic. The finding of the same biochemical response in artificial immunized animals as Dodds found in naturally immune animals suggests that the observation is intimately concerned with the chemical basis of malignant disease. These chemical observations have been observed only in strains of animals which are naturally immune or can be artificially immunized against neoplasm. It is not clear how the absorbed x-radiation produces the reaction. It is conceivable that other agents which mobilize body protein might produce the same effect.

American Journal of Clinical Pathology, Baltimore

8: 109-232 (March) 1938

Dialogue on Relations of Genetics and Experimental Embryology to Neoplasia. C. C. Little and S. P. Reimann, Philadelphia.—p. 109.

Etiology of Eclampsia: Preliminary Report. W. B. Patterson, H. F. Hunt and R. E. Nicodemus, Danville, Pa.—p. 120.

Late Metastasis in Papillary Ovarian Carcinoma: Report of Case. H. R. Prentice, Kalamazoo, Mich.—p. 136.

Changes in Blood Following Repeated Withdrawal of Ascitic Fluid in Cirrhosis of Liver. A. Cantarow, Philadelphia.—p. 142.

Frozen Section Biopsy at Operation. M. J. Breuer, Lincoln, Neb.—p. 153.

Bacterium Paratyphosum B Meningitis. H. Gordon and J. A. Kennedy, Louisville, Ky.—p. 170.

Isoagglutinin Titers in Serum Disease, in Leukemias, in Infectious Mononucleosis and After Blood Transfusions. I. Davidsohn, Chicago.—p. 179.

Relations of Adrenal Glands at Autopsy with Clinicopathologic Findings and with Blood Vitamin C. W. Freeman and W. E. Glass, with the technical assistance of Ann I. Walsh, Rose Small and L. DeLaura, Worcester, Mass.—p. 197.

Course of Blood and Spinal Fluid Glucose in Man (Schizophrenic Patients) After Shock Doses of Insulin. G. W. Day, E. O. Niver and M. M. Greenberg, Galveston, Texas.—p. 206.

American J. of Digestive Diseases, Fort Wayne, Ind.

5: 1-76 (March) 1938

Diagnostic Value of Duodenal Drainage and Cholecystography in Gallbladder Disease: Based on Study of 137 Operatively Proved Cases. L. J. Rigney, Wilmington, Del.; W. L. Mortensen, Santa Monica, Calif., and T. G. Miller, Philadelphia.—p. 1.

Glucose Tolerance in Anacidity. H. Shay, J. Gershon-Cohen and S. S. Fels, Philadelphia.—p. 4.

Laxatives and Bowel Consciousness: Clinical Study. M. Kraemer, Newark, N. J.—p. 9.

Treatment of Individual in the Care of Peptic Ulcer. J. Meyer and J. Kasanin, Chicago.—p. 12.

*Value of Cholesterol in Milk. O. L. Stringfield, New York.—p. 15.

Studies in Gastric Motility: Relation of Size of Meal to Gastric Emptying Time in Dog, Using a Meal Rich in Fat and Protein. E. J. Van Liere and C. K. Sleeth, Morgantown, W. Va.—p. 18.

How Does Activity of Cerebrum Affect the Work of Internal Organs? III. Effect of Conditioned Reflexes on Flow of Bile Through Duodenal Ampulla. M. A. Ussievich, Gorky, U. S. S. R.—p. 20.

Prevention or Healing of Experimental Peptic Ulcer in Mann-Williamson Dogs with Anterior Pituitary-like Hormone (Antuitrin-S): Preliminary Report. D. J. Sandweiss, H. C. Saltzstein and A. Farbman, Detroit.—p. 24.

Further Attempts to Produce Achlorhydria. A. J. Atkinson and A. C. Ivy, Chicago.—p. 30.

Role of Protein in Prevention of Experimental Gastric Ulcers. M. J. Matzner, C. Windwer and A. E. Sobel, Brooklyn.—p. 36.

Clinical Notes on Use of Color Filters in Sigmoidoscopy. J. Felsen, New York.—p. 38.

Continuous Drop Feeding for Treatment of Ulcers of Stomach and Duodenum. A. L. Soresi, New York.—p. 39.

Follicular Lesions of Vitamin A and C Deficiencies: Critical Survey. H. Keil, New York.—p. 40.

Value of Cholesterol in Milk.—Stringfield points out that the foods richest in cholesterol are egg yolk, beef and calf brains, kidney and liver, which contain as much as 120 times the cholesterol found in whole milk. At least forty other foods exceed milk in their proportions of cholesterol per hundred grams, including oranges, bread, lean beef, chicken, chocolate, ham and lard. When foods containing cholesterol are eaten, not all of this substance passes directly into the blood stream, much of it being converted by the enzyme cholesterase into other substances, some of which are excreted and some of which may go to the tissues in the form of esters. The small amount of cholesterol in milk is beneficial rather than detrimental. There seems to be no adequate reason for urging normal persons to curtail the amount of cholesterol in the diet, or to incriminate milk as a factor in the development of any degenerative disease, including all forms of arteriosclerosis.

American J. Obstetrics and Gynecology, St. Louis

35: 373-558 (March) 1938

The Problem of Endometriosis. D. Dougal, Manchester, England.—p. 373.

Improvements in Operative Treatment of Carcinoma of Large Bowel. W. W. Babcock, Philadelphia.—p. 386.

Early Diagnosis of Cancer of Body of Uterus. J. P. Pratt, Detroit.—p. 395.

Clinical Observations on Treatment of Primary Carcinomas of Cervix with 800 Kilovolt Roentgen Rays. H. Schmitz, H. E. Schmitz and J. F. Sheehan, Chicago.—p. 405.

Diagnosis and Management of Diverticulosis and Diverticulitis of Pelvic Colon in Women. F. S. Wetherell, Syracuse, N. Y.—p. 417.

Study of Certain Dietary Factors of Possible Etiologic Significance in Toxemias of Pregnancy. R. A. Ross, W. A. Perlzweig, H. M. Taylor, A. McBryde, A. Yates and A. A. Kondritzer, Durham, N. C.—p. 426.

Respiration and Pulmonary Ventilation in Normal Nonpregnant, Pregnant and Puerperal Women, with an Interpretation of Acid-Base Balance During Normal Pregnancy. E. D. Plass, Iowa City, and F. W. Oberst, Lexington, Ky.—p. 441.

Frank-Geist Operation for Congenital Absence of Vagina. W. T. Dannreuther, New York.—p. 452.

Cesarean Section in Infected Cases. W. R. Cooke, Galveston, Texas.—p. 469.

Preliminary Stage of Labor. B. G. Hamilton, Kansas City, Mo.—p. 477.

What Is Meant by the Term "Test of Labor?" E. L. King, New Orleans.—p. 482.

Relationship of Fetal Birth Injuries to Obstetric Difficulties. W. A. Scott, Toronto.—p. 491.

Gynoplastic Repair Following Delivery. R. C. King, Toledo, Ohio.—p. 497.

Surgical Treatment of Ovarian Dysfunctions. J. L. Reycraft, Cleveland.—p. 505.

Treatment of Vesicovaginal Fistulas. C. Duncan, Brooklyn.—p. 513.

Pelvic Tuberculosis. J. E. King, Buffalo.—p. 520.

American Journal of Physiology, Baltimore

121: 565-816 (March) 1938. Partial Index

Venous Pressure Responses to Exercise. E. C. Schneider and R. Collins, Middletown, Conn.—p. 574.

Formation and Behavior of Colloidal Calcium Phosphate in the Blood. F. C. McLean and Marie A. Hinrichs, Chicago.—p. 580.

Fate of Colloidal Calcium Phosphate in Dog. I. Gersh, Baltimore.—p. 589.

Effects of Cryptorchidism and Castration on Exophthalmos in Rabbits and Guinea Pigs. D. Marine and S. H. Rosen, New York.—p. 620.

Interrelationship of Pituitary Gonadotropic Hormones in Follicular Development and Ovulation of Juvenile Rabbit. M. A. Foster and H. L. Fevold, Cambridge, Mass.—p. 625.

Differential Action of Pituitary Gonadotropic Hormones on Secretory Capacity of Graafian Follicle and Corpus Luteum. M. A. Foster, Cambridge, Mass.—p. 633.

Relationship Between Abdominal, Uterine and Arterial Pressures During Labor. R. A. Woodbury, W. F. Hamilton and R. Torpin, Augusta, Ga.—p. 640.

Studies of Energy of Metabolism of Normal Individuals: Interindividual and Intraindividual Variability of Basal Metabolism. J. Berkson and W. M. Boothby, Rochester, Minn.—p. 669.

Some Determinations of Thresholds to Stimulation with Faradic and Direct Current in the Brain Stem. F. Harrison, H. W. Magoun and S. W. Ranson, Chicago.—p. 708.

Neuromuscular Responses to Variations in Calcium and Potassium Concentrations in Cerebrospinal Fluid. F. J. Mullin, A. B. Hastings and W. M. Lees, Chicago.—p. 719.

Effect of Sympathin on Blood Sugar. R. C. Bodo and A. E. Benaglia, New York.—p. 728.

Hyperglycemia Produced by Sympathin in Emotional Excitement. R. C. Bodo and A. E. Benaglia, New York.—p. 738.

Factors Influencing Augmentation Effects Produced by Zinc or Copper When Mixed with Gonadotropic Extracts. F. Bischoff, Santa Barbara, Calif.—p. 765.

Effects of Various Gonadotropic Substances on Ovaries, Pituitaries and Adrenals of Animals Receiving Long-Term Injections of Estrin. J. T. Diaz, Doris Phelps, E. T. Ellison and J. C. Burch, Nashville, Tenn.—p. 794.

American Journal of Psychiatry, New York

94: 1013-1258 (March) 1938

Habeas Corpus Releases of Feebleminded Persons and Their Consequences: Follow-Up Study. L. Kanner, Baltimore.—p. 1013.

Experimental Neurosis and the Problem of Mental Disorder. H. S. Liddell, Ithaca, N. Y.—p. 1035.

Introversion-Extraversion: Concepts and Their Clinical Use. R. M. Collier and Minna Emch, Chicago.—p. 1045.

Appraisal of Intellectual and Physical Factors After Cerebral Damage in Children. B. Crothers and Elizabeth Lord, Boston.—p. 1077.

The Other Side of Hallucinations. J. Lang.—p. 1089.

*Review of Results from Employment of Malaria Therapy in Treatment of Neurosyphilis in the Florida State Hospital. M. F. Boyd, W. K. Stratman-Thomas, S. F. Kitchen and W. H. Kupper, Tallahassee, Fla.—p. 1099.

Hereditary Form of Primary Parenchymatous Atrophy of Cerebellar Cortex Associated with Mental Deterioration. A. J. Akelaitis, Rochester, N. Y.—p. 1115.

Constructive Criticism of Certain Hospital Procedures. K. M. Bowman, New York.—p. 1141.

Statistical Contributions from Mental Hygiene Study of the Eastern Health District of Baltimore: I. General Account of the 1933 Mental Hygiene Survey of the Eastern Health District. B. M. Cohen and Ruth E. Fairbank, Baltimore.—p. 1153.

Diagnostic Validity of the Rorschach Test. J. D. Benjamin and F. G. Ebaugh, Denver.—p. 1163.

Some Clinical and Physiologic Aspects of the Brain Potentials. J. Hughes, E. A. Strecker and K. E. Appel, Philadelphia.—p. 1179.

Postoperative Psychoses. M. M. Abeles, New York.—p. 1187.

Results of Fifteen Years' Experience with Ketogenic Diet in Treatment of Epilepsy in Children. H. F. Helmholz and M. Goldstein, Rochester, Minn.—p. 1205.

Some Data of Psychic Morbidity of Jews and Arabs in Palestine. L. Halpern, Jerusalem, Palestine.—p. 1215.

Psychiatric History and Development in California. Margaret H. Smyth, Stockton, Calif.—p. 1223.

Malarial Therapy in Neurosyphilis.—Boyd and his associates compare the late results of malarial therapy supplemented by chemotherapy in 190 cases of cerebrospinal syphilis with twenty concurrent cases treated by chemotherapy alone. Of the patients receiving malarial therapy, 55 per cent show improvement or complete remission as contrasted with 30 per cent of those receiving chemotherapy alone. The quartan parasite appears to be the most effective agent for producing the requisite number of severe paroxysms. Best results were secured from the application of malarial therapy to persons less than 30 years of age. Such patients react favorably to fewer paroxysms than appear necessary to produce comparable results in older persons. Better results have been secured from asymptomatic cases than from symptomatic. Of the latter, the cases presenting only organic signs have given better results than those in which mental involvement has existed. The severity of the paroxysms experienced, rather than their number, appears to have a definite influence on the results secured. It is suggested that the objective of malarial therapy should be the subjection of the patient to a minimum of twenty-one paroxysms which attain a height of 104 F. or more, and that, if the first strain or species of parasite employed fails to produce this minimum, reinoculation with different strains or species should be undertaken until this minimum is reached.

American Journal of Public Health, New York

28: 241-422 (March) 1938

Mental Hygiene and the Health Department. A. W. Freeman, Baltimore.—p. 241.

Is There an Epidemiology of Mental Disease? H. B. Elkind, Boston.—p. 245.

Achievements in Mental Hygiene and Promising Leads for Further Endeavor. C. M. Hincks, New York.—p. 251.

Relationship of Maternal and Child Health to the General Health Program. T. Parran, Washington, D. C.—p. 256.

Essentials of an Effective State Plan and Program of Activities for Flood Sanitation. C. W. Klassen and A. P. Miller, New York.—p. 263.

Visual Education for Schools. Pauline Brooks Williamson, New York.—p. 278.

Adaptation of International List of Causes of Death to Changing Needs of the Medical Profession and Public Health Groups. H. L. Dunn, Washington, D. C.—p. 283.

Study of Type I Pneumococcus Epidemic at the State Hospital at Worcester, Mass. W. G. Smillie, New York; G. H. Warnock, Albany, N. Y., and H. J. White, Boston.—p. 293.

The Health Department in the Field of Medicine. R. H. Riley, Baltimore.—p. 303.

Dark Adaptation Test for Vitamin A Deficiency. C. E. Palmer, Washington, D. C.—p. 309.

Present Status of Phosphatase Test for Pasteurization. W. von D. Tiedeman, Albany, N. Y.—p. 316.

Nutritional Influence on Teeth. Frances Krasnow, New York.—p. 325.

Practical Procedures in School Health Service. Dorothy B. Nyswander, New York.—p. 334.

Education of the Handicapped Child. B. Crothers, Boston.—p. 340.

Measurement of Sanitary Ventilation. W. F. Wells and Mildred Weeks Wells, Philadelphia.—p. 343.

Basic Principles of Healthful Housing: Preliminary Report of the Committee on the Hygiene of Housing of the American Public Health Association.—p. 351.

American Journal of Tropical Medicine, Baltimore

18: 111-244 (March) 1938

*Yellow Fever Vaccination with Cultivated Virus and Immune and Hyperimmune Serum. F. L. Soper and H. H. Smith, New York.—p. 111.

*Transmission of Two Strains of Jungle Yellow Fever Virus by Aedes Aegypti. L. Whitman and P. C. A. Antunes, Bahia, Brazil.—p. 135.

Method for Determination of Atabrine in Blood. C. J. Gentzkow, Ancon, Canal Zone.—p. 149.

Comparative Susceptibility of Certain Species of Nearctic and Neotropical Anophelines to Certain Strains of Plasmodium Vivax and Plasmodium Falciparum from the Same Regions. M. F. Boyd, Tallahassee, Fla.; H. P. Carr, Havana, Cuba, and L. E. Rozeboom, Panama, Republic of Panama.—p. 157.

Critical Study of Clinical Laboratory Technics for Diagnosis of Protozoan Cysts and Helminth Eggs in Feces: I. Preliminary Communication. E. C. Faust, J. S. D'Antoni, V. Odom, M. J. Miller, C. Peres, W. Sawitz, L. F. Thomen, J. Tobie and J. H. Walker, New Orleans.—p. 169.

Fatal Case of Chagas Disease Occurring in a Man 77 Years of Age. K. R. Lundeberg, Ancon, Canal Zone.—p. 185.

Cardiac Changes in Dogs Experimentally Infected with Trypanosoma Cruzi. C. M. Johnson, Panama City, Republic of Panama.—p. 197.

Distribution of Trypanosoma Cruzi Chagas in the Southwestern United States. Fae D. Wood and S. F. Wood, Los Angeles.—p. 207.

Experimental Lesions Induced in Rabbit with Acid-Fast Chromogenic Bacillus (Duval) from Human Leprosy. J. R. Kriz, New Orleans.—p. 213.

Yellow Fever Vaccination.—Soper and Smith point out that between October 1935 and April 1936 forty-four adults were vaccinated against yellow fever in Brazil with tissue culture virus (17E) and human immune serum. The immune serum used was from pools obtained from two or more persons who had suffered attacks of yellow fever. The dose used was 0.5 cc. per kilogram of body weight. An interval of from thirty minutes to two hours elapsed between injections of the immune serum and the virus. Intracerebral injection into mice of peripheral blood, drawn daily from two men during fourteen days following vaccination, failed to reveal the presence of circulating virus. Thirty-seven of the forty-four persons vaccinated were tested for immunity one month later. Of these, only two were not immunized. One of these was subsequently vaccinated with the same tissue culture virus and immune monkey serum, and immunity developed. The use of cultivated virus and human immune serum appears to be safe and highly effective but impracticable for mass vaccination because of the difficulty in obtaining and administering the necessary amount. During the same period 234 persons were

vaccinated with the same virus and various pools of immune goat serum. Although satisfactory immunization was secured, this method cannot be recommended because of serum reactions and delayed febrile reactions with circulating virus attributed to the rapid excretion of the heterologous serum. In 1936 and 1937 a total of 795 persons were vaccinated with hyperimmune monkey serum and the same tissue culture virus. Antibodies in rhesus serum were more effective than those in goat serum. The relatively high percentage of failure to immunize encountered with this method is attributed to the use of excessive amounts of antibody, resulting in a complete inhibition of activity of the virus. A delayed reaction of unknown etiology occurring from two to eight months after vaccination, the main symptoms of which was jaundice, was reported in from 20 to 30 per cent of a series of vaccinations done with two pools of hyperimmune monkey serum.

Transmission of Jungle Yellow Fever Virus by Aedes Aegypti.—According to Whitman and Antunes, two strains of jungle yellow fever virus have been transmitted by the bites of Aedes aegypti under laboratory conditions. The M. A. J. strain has been carried through seventeen mosquito-monkey-mosquito passages and the Suarez strain through four. No difficulty has been encountered in maintaining the passages. The minimal incubation period between the infectious meal and the earliest capacity to transmit by bite in Aedes aegypti has been from fourteen to fifteen days when the M. A. J. strain is used. The prolonged incubation period may play a part in limiting the importation of jungle virus into towns. Of twenty-seven monkeys infected with the M. A. J. strain, thirteen of seventeen survivors either had no fever or first showed fever after the virus had practically disappeared from the blood stream. In the four remaining survivors and in the ten animals that died, the onset of fever corresponded with the period of maximal circulating virus. The delayed febrile response in nonfatal cases may not be a characteristic of jungle virus but may be related to the pathogenicity for rhesus monkeys of the particular strain of virus used, whether of urban or of jungle origin. If the human response is comparable to that of rhesus monkeys, many cases brought to town for treatment after the onset of fever would no longer be infectious for the local Aedes aegypti.

Annals of Surgery, Philadelphia

107: 481-640 (April) 1938

Postanesthetic Encephalopathy Following Cyclopropane. P. W. Gebauer and F. P. Coleman, Cleveland.—p. 481.
Severe Degeneration of the Brain Following Nitrous Oxide-Oxygen Anesthesia. J. D. O'Brien, Canton, Ohio, and A. T. Steegmann, Cleveland.—p. 486.
Brain Abscess of Undetermined Etiology: Report of Four Cases with Recovery. J. C. Yaskin, F. C. Grant and R. A. Groff, Philadelphia.—p. 492.
*Treatment of Hemorrhage and Traumatic Shock by Intravenous Use of Lyophile Serum. D. D. Bond and D. G. Wright, Philadelphia.—p. 500.
Acute Appendicitis in Complete Transposition of Viscera: Report of Case with Symptoms Referable to Right Side Mechanism of Pain in Visceral Disease. F. B. Block and M. A. Michael, Philadelphia.—p. 511.
Bacterial Flora of Acute Perforated Appendicitis with Peritonitis: Bacteriologic Study Based on 100 Cases. W. A. Altemeier, Detroit.—p. 517.
Rare Incidence of Acute Appendicitis Resulting from External Trauma. R. H. Fowler, Newark, N. J.—p. 529.
Surgical Consideration of Solitary Polyps of the Colon. C. W. Mayo and W. L. Butsch, Rochester, Minn.—p. 540.
Results of Conservative Treatment of Acute Cholecystitis. G. P. Pennoyer, New York.—p. 543.
Spontaneous Postoperative Rupture of Bile Ducts. B. Newburger, Cincinnati.—p. 558.
Dermoid Cysts of the Mesentery. G. C. Penberthy and K. M. Brownson, Detroit.—p. 566.
Direct Inguinal Hernia. L. S. Fallis, Detroit.—p. 572.
Communicating Veins of Lower Leg and Operative Technic for Their Ligation. R. R. Linton, Boston.—p. 582.
Injuries About Shoulder Joint in Children, Exclusive of Fractures of Clavicle. J. E. Sullivan, New York.—p. 594.
Stenosing Tendovaginitis at Radial Styloid Process. H. B. Keyes, New York.—p. 602.
*Bacterial Flora of Clean Surgical Wounds. H. R. Ives Jr. and J. W. Hirshfeld, New Haven, Conn.—p. 607.

Treatment of Hemorrhage and Shock with Lyophile Serum.—Bond and Wright used lyophile serum intravenously to treat animals that were moribund after experimental shock and hemorrhage. Thirty-one dogs were used and, for the most part, were under light ether anesthesia administered by tracheal cannula. A few were under sodium amytal, given intraperitoneally. During periods of trauma the ether anesthesia was deepened. The experimental data suggest that solutions of lyophile serum would be useful in the treatment of clinical traumatic shock, surgical shock, severe burns and hemorrhage. However, pending further clinical experience lyophile serum should be given slowly and with caution, and pools of serum should be prepared from donors of single blood type compatible with that of the recipient.

Bacterial Flora of Clean Surgical Wounds.—In studying the bacteriology of surgical wounds and its importance in relation to the problem of wound infection, Ives and Hirshfeld made cultures of the wounds during the actual operation in thirty cases in which there was no infection. With the exception of one thoracoplasty, all the wounds were in the abdominal wall. No case was studied if there was any possibility of contamination with feces, pus, urine or bile. Positive cultures were obtained from the skin in 86 per cent at the start of the operation and in 100 per cent of the cases at the close of the operation. Their observations and those that they were able to collect from the literature justify the conclusion that well over 50 per cent of postoperative infections of wounds are caused by either Staphylococcus aureus or Staphylococcus albus. These organisms are present in the air of the operating room and on the skin of the patient. They unquestionably contaminate wounds during operations, and they may be recovered from the wounds by suitable culture methods. The incidence of infected wounds can be lowered by eliminating these bacteria from the air and skin. The methods which have been used to sterilize air in the operating room are as yet clumsy and difficult to employ but, until a satisfactory method of preventing the contamination of wounds with staphylococci from the air of the operating room is developed, wound infections will continue to occur.

Archives of Dermatology and Syphilology, Chicago

37: 549-736 (April) 1938

Studies on Porphyria: II. Case of Porphyria Accompanied with Epidermolysis Bullosa, Hypertrichosis and Melanosis. W. J. Turner, North Little Rock, Ark., and M. E. Obermayer, Chicago.—p. 549.
Treatment of Angioma Based on Ten Years' Experience at the Vanderbilt Clinic. G. C. Andrews, New York.—p. 573.
Eczematous Eruptions Produced by Leaves of Trees and Bushes: V. Genner and P. Bonnevie, Copenhagen, Denmark.—p. 583.
Leukoplakia Buccalis. F. J. Eichenlaub, Washington, D. C.—p. 590.
Acquired Specific Hypersensitivity to Simple Chemicals: II. Cheilitis, with Especial Reference to Sensitivity to Lipstick. M. B. Sulzberger and J. Goodman, with technical assistance of L. A. Byrne and Ella D. Mallozzi, New York.—p. 597.
LXXX. Further Studies of Relation of Pityrosporum Ovale to Seborrheic Eczema. R. L. Kile and M. F. Engman, St. Louis.—p. 616.
*Relapse in Lupus Erythematosus After Treatment with Sodium Gold Thiosulfate. J. L. Callaway, Durham, N. C., and J. H. Stokes, Philadelphia.—p. 627.
*Cutaneous Hazards in Citrus Fruit Industry: Brief History of Citrus Fruit in Florida and in California. L. Schwartz, New York.—p. 631.
Stigmatization. J. V. Klauder, Philadelphia.—p. 650.

Relapse in Lupus Erythematosus.—Of thirty-one patients with lupus erythematosus whom Callaway and Stokes "cured" with sodium gold thiosulfate, 75 per cent had relapses. Twenty-three patients gave a history of previous oversusceptibility to sunburn. This proved to be significant, for seventeen of the patients experiencing relapse gave a definite history of relapse following exposure to sunlight. Nervous stress and strain undoubtedly had a part in causing certain of the relapses (seven patients), particularly among high-strung patients in private practice. In these patients relapse seemed to be associated with the appearance of the rosacea complex under stress. Each patient had from one to four relapses. Patients whose involvement was extensive, with many lesions, experienced relapse more often (82 per cent) than patients with mild involvement or few lesions (57 per cent). Relapses occurred without relation to any interval of time. No relation was observed to the total or the average dose of sodium gold thiosulfate.

Cutaneous Hazards in Citrus Industry.—Schwartz lists the cutaneous hazards in the citrus fruit industry as: (1) in growing, dermatitis from fertilizers and insecticides and wounds from citrus thorns; (2) in packing, dermatitis from washing solutions and from hypersensitivity to citrus oils, and (3), in canning, dermatitis and paronychia among peelers, reamers and sectioners, because of hypersensitivity to citrus oils and juices.

No cases of dermatitis were encountered that could be attributed to the dyes used to color the oranges. Spreaders of fertilizer and handlers of insecticides should wear rubber gloves, aprons and goggles. Pickers should wear leather gloves and wrist bands. Packers, peelers, reamers and sectioners should wear rubber gloves. Packing and canning operations should be mechanized to as great an extent as possible.

Archives of Ophthalmology, Chicago

19: 487-662 (April) 1938

Choroidal Sclerosis in Coronary Arteriosclerosis: Report of Case. M. Cohen, New York.—p. 487.
Pyretotherapy in Ophthalmology. L. Hambresin, Brussels, Belgium.—p. 497.
The Problem of Glaucoma. B. L. Gordon, Atlantic City, N. J.—p. 515.
*Intracapsular Cataract Extraction: Report of Further Series of Cases. L. F. Appleman, Philadelphia.—p. 548.
The Dominant Eye: Its Clinical Significance. W. H. Fink, Minneapolis.—p. 555.
Treatment of Conjunctivitis. P. Thygeson, New York.—p. 586.

Intracapsular Cataract Extraction.—Appleman reports his experience with intracapsular cataract extraction in 268 cases from the wards of the Wills Hospital, in 250 of which there were no complications, and in seventy-two cases from private practice. The Knapp method was used in all cases. The intracapsular method was performed in 146 cases in which there were no complications. Vision of 6/12 or better was obtained in ninety-eight cases, 6/6 in thirty-seven cases, 6/9 in thirty-eight cases and 6/12 in twenty-three cases. The classic method of operation was used in 104 cases. Vision of 6/12 or better was obtained in eighty cases. The intracapsular method was used in the seventy-two cases from private practice. Vision of 6/12 or better was obtained in sixty-three. An expulsive hemorrhage occurred in one case, with loss of the eye. Of the eighteen cases in which there were complications the intracapsular operation was performed in thirteen and was considered a failure in twelve because of various subsequent complications. The extracapsular extraction was performed in five cases and was also considered a failure because of complications. The author considers the intracapsular operation the method of choice in cases in which there are no complications because of the smoothness and rapidity of convalescence, the absence of reaction and the visual results obtained.

Archives of Otolaryngology, Chicago

27: 261-394 (March) 1938

Treatment of Simple Chronic Laryngitis. L. H. Clerf, Philadelphia.—p. 261.
Relation of Irritation in Region of Paranasal Sinuses to Certain Vasomotor Changes: Experimental Study. O. Larsell, J. F. Barnes and R. A. Fenton, Portland, Ore.—p. 266.
Unusual Combination of Ocular Paralyses Following Radical Operation on Antrum. R. C. Grove, New York.—p. 275.
Otic Capsule and Membranous Labyrinth of the 29 Mm. (Crown-Rump) Human Embryo. J. Martin and B. J. Anson, Chicago.—p. 279.
Interpretation of Results of Tuning Fork Test for Deafness. F. A. H. Johnson, Washington, D. C.—p. 304.
Nasopharyngeal Fibroma: Report of Case in Which Surgical Approach Was Employed. R. F. Nelson, Oakland, Calif.—p. 313.
Meningitis Due to Staphylococcus Aureus Haemolyticus: Report of Recovery. M. Fritz and W. Hollister, Durham, N. C.—p. 317.
Postoperative Report of Paranasal Sinuses: Experimental Studies and Their Practical Application. M. A. Glatt, Chicago.—p. 323.
False Ankylosis of the Mandible. J. H. Childrey, San Francisco.—p. 339.
Peroral Endoscopy. L. H. Clerf and F. J. Putney, Philadelphia.—p. 347.

California and Western Medicine, San Francisco

48: 233-304 (April) 1938

Hyperparathyroidism, with Special Reference to Parathyroid Adenoma. W. W. Washburn, San Francisco.—p. 240.
Acute Anterior Poliomyelitis: Possibility of Spread as a Result of Direct Personal Contact: Study of 385 Contacts. J. C. Geiger, San Francisco.—p. 245.
Functional Indigestion. A. E. Koehler, Santa Barbara.—p. 247.
Endocrines and Behavior in Puberty. Clara H. Spalding, Richmond.—p. 251.
Abdominal Abscesses: Their Treatment. T. O. Burger and H. C. Torbert, San Diego.—p. 252.
Critical Decisions in Cataract Surgery. H. F. Whalman, Los Angeles.—p. 255.
As a Pharmacist Views the Proposed California Humane Pound Law. J. J. Boyle, Los Angeles.—p. 257.
Proposed California Humane Pound Law: How It Would Affect Medicine and Pharmacology. C. H. Thienes, Los Angeles.—p. 258.
Federal and State Narcotic Laws: Cautions for Physicians. W. R. Molony Sr., Los Angeles.—p. 261.
Federal and California State Narcotic Laws: Cautions from the Standpoint of a Pharmacist. F. Homer, Beverly Hills.—p. 262.

Canadian Medical Association Journal, Montreal

38: 317-420 (April) 1938

Reconstruction of Valves of the Heart. G. Murray, F. R. Wilkinson and R. MacKenzie, Toronto.—p. 317.
Urinary Obstruction in Children. D. W. MacKenzie and M. Ratner, Montreal.—p. 320.
Unusual Malignant Conditions of the Skin. B. W. MacDonald, Ottawa, Ont.—p. 328.
Present Status of Intravenous Administration of Pentothal Sodium in Institutional and Private Practice. R. C. Adams, Rochester, Minn.—p. 330.
Fetal Respiration and Its Relation to Abnormalities of the Newborn. F. F. Snyder and M. Rosenfeld, Baltimore.—p. 338.
The Fatigue Syndrome. G. K. Wharton, London, Ont.—p. 339.
Vesico-Intestinal Fistula. E. R. Hall, Vancouver, B. C., and N. D. Hall, Phoenix, Ariz.—p. 343.
Volvulus of Cecum: Report of Two Cases. A. J. Grace, London, Ont.—p. 346.
Acariasis of Urinary Tract Caused by Histogaster. A. E. McCulloch, Toronto.—p. 351.
*Mandelic Acid in Treatment of Pyuria. Pearl Summerfeldt and A. Brown, Toronto.—p. 352.
*The Menace of Sodium Bicarbonate—Pleionexy. J. K. Latchford, Toronto.—p. 356.
Silk Technic: Its Role in Wound Healing. G. Miller and J. C. Luke, Montreal.—p. 358.
Pruritus Gingivae. L. P. Strean, Montreal.—p. 362.
Positive Wassermann Reaction in Ascitic Fluid: Report of Two Cases. N. B. Gwyn, Toronto.—p. 363.
Pneumococcus Typing in the Public Health Laboratory. W. B. McClure, Toronto.—p. 365.
Radiosensitivity of Benign Skin Conditions. C. M. Henry, Regina, Sask.—p. 371.
Childhood Tuberculosis. A. M. Jeffrey, Ottawa, Ont.—p. 373.
Examination of Mouths of Eskimos in the Canadian Eastern Arctic. C. S. McEuen, Montreal.—p. 374.

Mandelic Acid in Pyuria.—During the last seventeen months Summerfeldt and Brown treated fifty-two cases of infection of the urinary tract with sodium or ammonium salt of mandelic acid. Of these, thirty-one cases were acute pyuria and twenty-one were persistent pyuria. The organisms present in the urine were Bacillus coli, except in six cases in which they were Bacillus paracoli, two cases in which they were Staphylococcus aureus and in two cases dysentery, one of which was a Bacillus flexneri. Not one of these organisms was resistant to treatment. Of the forty patients treated with sodium mandelate and ammonium chloride the urine of 50 per cent was free of pus and bacteria in from one to seven days after the reaction of the urine was more acid than a p_H of 5.8. In 38 per cent sterile urine was obtained in from eight to thirty-four days, while in 12 per cent there was no response to treatment. Of the twelve patients treated with ammonium mandelate, 58 per cent responded to the drug within seven days, while 42 per cent required from nine to twenty-eight days. The patients with acute pyuria responded to treatment more quickly than did the persistent group. Twenty cases were observed for from one to sixteen months. There was a recurrence of the pyuria in four cases, and of bacilluria in three cases. In thirteen cases there was no recurrence of either the bacilluria or the pyuria.

Menace of Sodium Bicarbonate.—According to Latchford, instances of tetany have been reported following the use of sodium bicarbonate. It is difficult to understand the danger of such a simple, common substance. Yet the danger is, as with carbon monoxide, interference with the discharge of oxygen by the circulating hemoglobin. Barcroft showed that sodium bicarbonate was highly pleionectic in its action on hemoglobin. Pleionexy is that condition of the circulating hemoglobin in which it holds on more firmly to its gathered oxygen than in the normal condition (mesonexy) and so gives off less oxygen to the tissues than normally. When pleionexy is present, whether induced by sodium bicarbonate, dibasic sodium phosphate or diminished carbon dioxide content, the tissues fail to receive enough oxygen for their needs and tend to fail in proportion to their oxygen requirements and the degree of the lag of oxygen supply behind oxygen demand. With the onset of pleionexy occurs the development of the anoxemic condition, which the organism may or may not survive. Not all degrees of anoxemia are dangerous, but all tend to produce tissue breakdown. Failure is inevitable if the tissues of the individual cannot endure the anoxemic breakdown. Sodium bicarbonate shifts the disso-

ciation curve of hemoglobin to the left, decreasing oxygen supply to the tissues, producing pleionexy, which as a result of treatment does not appear justifiable, owing to the fact that immediate interference with oxygen supply follows its absorption.

Connecticut State Medical Society Journal, Hartford

2: 163-206 (April) 1938

Fracture Disabilities of Forearm. A. Steindler, Iowa City.—p. 163.
Treatment and Prevention of Pneumonia: Responsibility of the Doctor. J. A. Wentworth, Hartford.—p. 170.
Treatment of Early Syphilis. J. H. Stokes, Philadelphia.—p. 172.
Obstetrics in the United States: Today and Tomorrow. R. M. Lewis, New Haven.—p. 174.
Newer Anesthetic Agents and Methods Used in Present Day Practice. R. M. Tovell, Hartford.—p. 177.
Ovarian Pregnancy. R. A. Gandy, Stamford.—p. 182.
Annual Congress on Medical Education and Licensure. C. J. Bartlett, New Haven.—p. 188.

Endocrinology, Los Angeles

22: 411-520 (April) 1938

Syndrome Characterized by Osteitis Fibrosa Disseminata, Areas of Pigmentation and a Gonadal Dysfunction: Further Observations Including Report of Two More Cases. F. Albright, B. Scoville and H. W. Sulkowitch, Boston.—p. 411.
Clinical Results of Anterior Pituitary Therapy in Children: Comparison of Value of Oral and Hypodermic Preparations. M. Molitch and S. Poliakoff, Philadelphia.—p. 422.
*Prolactin: Its Effect on Secretion of Woman's Milk. J. R. Ross, Toronto.—p. 429.
Biologic Effects of Thymus Implantation in Thymectomized Rats: Correction of Retardation in Growth and Development in Successive Generations of Thymectomized Rats by Means of Frequent Homologous Thymus Implants. N. H. Einhorn, Philadelphia.—p. 435.
Negative Effects of Endocrine Extracts on Thymus of the White Rat. F. N. Low, Ithaca, N. Y.—p. 443.
Study of Natural Growth and Ossification in Hereditary Dwarf Mice. E. Boettiger and C. M. Osborn, Cambridge, Mass.—p. 447.
Autotransplantation and Regeneration of Adrenal Gland. D. J. Ingle and G. M. Higgins, Rochester, Minn.—p. 458.
Work Performance of Untreated Hypophysectomized Rats. D. J. Ingle, Rochester, Minn.—p. 465.
Some Effects of Adrenalectomy in Fowls. E. H. Herrick and O. Torstveit, Manhattan, Kan.—p. 469.
Free and Total Cholesterol Content of Whole Blood and Plasma as Related to Experimental Variations in Thyroid Activity. L. H. Schmidt and Hettie B. Hughes, Cincinnati.—p. 474.
Purification of Anterior Pituitary Growth Hormone by Fractionation with Ammonium Sulfate. H. M. Evans, N. Uyei, Q. R. Bartz and Miriam E. Simpson, Berkeley, Calif.—p. 483.
Hyperglycemia Without Glycosuria. C. F. Davidson, Seattle.—p. 493.

Effect of Prolactin on Secretion of Milk.—Ross gave prolactin to nursing mothers so that he could observe its efficacy on the secretion of milk. The breast milk was pumped by an Abt electric breast pump and the amount obtained was measured carefully. Infants were selected who did not show signs of weight increase by the fifth day. Breast milk was then pumped from the mother and the total twenty-four hour secretion was measured for one or usually two days. Nine mothers received two intramuscular injections of 2 cc. of prolactin (80 Riddle units) and on the second day two intramuscular injections of 3 cc., and twelve patients were given a similar volume of prolactin containing 100 Riddle units per cubic centimeter. A group of ten patients acted as controls and received a similar amount of saline solution. The breast milk was pumped at intervals of four hours until the patient was discharged. No untoward reactions were noted with the less concentrated prolactin. With the more concentrated prolactin, however, reactions consisting of redness and induration varying in diameter from 2 to 15 cm. developed in 83 per cent of the cases. These cleared up in from two to three days. There was also a rise in temperature of from 100 to 102 F. in all but one case after the injections but it returned to normal in from two to six days. The higher concentration of prolactin administered increased slightly the secretion of breast milk during the remainder of the patient's stay in the hospital. Of much more significance, however, was the fact that seven of eleven patients receiving this higher concentration of prolactin, observed after discharge from the hospital, nursed their infants completely, whereas of eight such observed patients receiving the lower concentration of prolactin only two were able to nurse their infants completely. Of the eight controls, only one nursed her infant completely.

Illinois Medical Journal, Chicago

73: 265-356 (April) 1938

Community of Interest Among the Professions. C. B. Reed, Chicago.—p. 309.
The Individual in a Free Society. S. B. Pettengill, South Bend, Ind.—p. 313.
Treatment of Endocrine Disorders. J. H. Hutton, Chicago.—p. 321.
Enteritis. J. A. Mathis, Pinckneyville.—p. 325.
Fundamentals of Water Balance in Surgery. E. Bechtold, Belleville.—p. 327.
Ruptured Aneurysm of Left Gluteal Artery with Operation. W. I. Lewis, Herrin.—p. 331.
Cysts of the Mesentery: Review of Literature and Report of Case. W. E. Keesey, Chicago.—p. 333.
*Pulmonary Changes in Rheumatic Fever. P. J. Melnick, Decatur.—p. 336.
The Problem of Rheumatism. J. G. Finder, Chicago.—p. 340.
Importance of Preemployment and Periodic Medical Examinations: Summary of Medical Findings in 500 Cases. R. C. Page, Chicago.—p. 343.
Development of a Full Time School Health Program in a City of 125,000. C. H. Benning, Peoria.—p. 348.

Pulmonary Changes in Rheumatic Fever.—Melnick reported necropsies on six patients with acute rheumatic fever. They had complained of joint pains, fever and dyspnea and palpitation. The physical signs were sufficiently clear so that a correct clinical diagnosis of acute rheumatic fever could be made. The postmortem observations, in all the cases, were those of acute rheumatic fever, with verrucous eruptions on one or more valves and Aschoff nodules in the myocardium. In four cases there was no fibroplastic deformity of the heart valves. The consistency of the lungs in all the cases was boggy or rubbery, yet the surfaces that were cut were dry; that is, there was no fluid in the air sacs. In addition, in three cases the surfaces that were cut revealed wide bands which were redder and firmer, having the consistency of spleen tissue; i. e., focal areas of "splenization." The essential microscopic changes were those of an intense hyperemia and a proliferation of the septal cells. The alveolar walls were greatly thickened up to ten or more times the normal. The capillaries in the alveolar walls showed an extreme dilatation, often bulging into the alveolar spaces. There was an increased cellularity of the alveolar wall. The process was seen especially intensified in the focal areas of splenization in three cases. The smallest branches of the pulmonary artery showed changes which may be significant. The endothelium of these vessels was much swollen, cuboidal and even columnar, and vacuolated. No bacteria could be found in any of these lungs except in one case complicated by a confluent bronchopneumonia. The process resembles an allergic reaction. The concept that rheumatism has certain allergic aspects has recently come into greater prominence. In rheumatism the Aschoff nodule in the myocardium is probably an allergic granuloma, according to Klinge and others. Similar rheumatic nodules have been found in almost every organ in the body. The process seen in the lungs in acute cases of rheumatic fever is probably one of the hypergic mechanisms that occur in this disease.

Indiana State Medical Assn. Journal, Indianapolis

31: 161-218 (April) 1938

Diagnosis and Treatment of Diphtheria. E. R. Carlo, Fort Wayne.—p. 161.
Postdiphtheritic Complications. R. A. Craig, Kokomo.—p. 163.
Diphtheria Prevention and the American Legion. H. J. Norton, Columbus.—p. 165.
*Endometriosis. A. Hurley, Muncie.—p. 167.
Study of Appendicitis. J. M. Leffel and H. S. Leonard, Indianapolis.—p. 169.
Carrel-Dakin Treatment of Open Wounds. J. C. Donchess, Gary.—p. 173.
The Present-Day Crisis in Medical Thought. W. D. Inlow, Shelbyville.—p. 178.

Endometriosis.—In a review of 507 consecutive pelvic laparotomies done by Hurley and his senior associate during three years, endometriosis was found in forty-nine cases. In all except three the entire disability was produced by the endometriosis. All were proved to be endometriosis by microscopic examination. Ectopic endometrium can be found in many locations. It is best classified as internal or external endometriosis. The progress or retrogression of endometriosis depends on the presence or absence of hormone stimulation from the ovary. Two methods of treatment are available. Surgical removal of the growth when possible is to be desired in all large lesions and in all patients less than 40 years of age. In patients who

have extensive involvement of both ovaries, a small amount of ovarian tissue can usually be spared regardless of how extensive the growth has become. In cases in which small amounts of ovarian tissue have been saved there have been no recurrences up to the present time. If the peritoneum and intestine and pelvic organs are extensively involved, resection of most or all ovarian tissue will effect a retrogression of the lesions to such an extent that almost complete symptomatic relief will occur. Only adhesions will remain if this procedure is carried out. Roentgen therapy is indicated only in patients more than 40 years of age, with lesions that are not large and in whom one feels certain that the diagnosis of endometriosis is correct. Internal adenomyosis or endometriosis of the wall of the uterus is not helped by curettage.

Journal of Biological Chemistry, Baltimore

123: 1-374 (March) 1938. Partial Index

Electrophoresis of Posterior Pituitary Gland Preparations. V. du Vigneaud, G. W. Irving Jr., Helen M. Dyer and R. R. Sealock, Washington, D. C.—p. 45.

Vitamin A and Tumor Mitochondria. A. Goerner and M. Margaret Goerner, Brooklyn.—p. 57.

Reduction of Aminosorbitol Hydrochloride with Hydriodic Acid. P. A. Levene and C. C. Christman, New York.—p. 77.

Reduction of Glucosaminic Acid with Hydrogen Iodide in Glacial Acetic Acid. P. A. Levene and C. C. Christman, New York.—p. 83.

Plasma Protein Given by Vein and Its Influence on Body Metabolism. F. S. Daft, Frieda S. Robscheit-Robbins and G. H. Whipple, Rochester, N. Y.—p. 87.

Protein Metabolism, Protein Interchange and Utilization in Phlorhizinized Dogs. J. W. Howland and W. B. Hawkins, Rochester, N. Y.—p. 99.

Isolation of Creatinine from Serum Ultrafiltrates. O. H. Gaebler and L. D. Abbott Jr., Detroit.—p. 119.

Isolation and Identification of Anti-Black Tongue Factor. C. A. Elvehjem, R. J. Madden, F. M. Strong and D. W. Woolley, Madison, Wis.—p. 137.

Analysis of Calcium in Blood and Other Biologic Material by Titration with Ceric Sulfate. C. E. Larson and D. M. Greenberg, Berkeley, Calif.—p. 199.

Studies on Biologic Oxidations: X. Oxidation of Unsaturated Fatty Acids with Blood Hemin and Hemochromogens as Catalysts. E. S. G. Barron and C. M. Lyman, Chicago.—p. 229.

Effect of Jaundiced Blood on Normal Dogs, with Especial Reference to Serum Phosphatase. S. Freeman and Y. P. Chen, Chicago.—p. 239.

Metabolism of Pyruvic Acid in Vitamin B_1 Deficiency and in Inanition. M. A. Lipschitz, V. R. Potter and C. A. Elvehjem, Madison, Wis.—p. 267.

Buffer Intensities of Milk and Milk Constituents: III. Buffer Action of Calcium Citrate. E. O. Whittier, Washington, D. C.—p. 283.

Effect of Growth on Distribution of Water and Electrolytes in Brain, Liver and Muscle. H. Yannet and D. C. Darrow, New Haven, Conn.—p. 295.

Journal of Experimental Medicine, New York

67: 495-658 (April) 1938

Some Effects of Formaldehyde on Horse Antipneumococcus Serum and Diphtheria Antitoxin and Their Significance for Theory of Antigen-Antibody Aggregation. H. Eagle, Washington, D. C.—p. 495.

The Degree of Compensatory Renal Hypertrophy Following Unilateral Nephrectomy II. Influence of Protein Intake. Lois L. MacKay, San Diego, Calif.; T. Addis, San Francisco, and E. M. MacKay, San Diego, Calif.—p. 515.

Observations on Pathologic Changes Following Experimental Hypertension Produced by Constriction of Renal Artery. C. G. Child, New York.—p. 521.

Evidence of Active Immunity to Experimental Poliomyelitis Obtained by Intranasal Route in Macacus Rhesus. S. D. Kramer, L. H. Grossman and G. C. Parker, Brooklyn.—p. 529.

Chemical Studies on Bacterial Agglutination: IV. Quantitative Data on Pneumococcus R (Dawson S)-Anti-R (S) Systems. M. Heidelberger and E. A. Kabat, New York.—p. 545.

Course of Virus Induced Rabbit Papillomas as Determined by Virus, Cells and Host. J. G. Kidd, New York.—p. 551.

Study of Macrophage Reaction in Pulmonary Lesions of Dogs with Experimental Pneumococcus Lobar Pneumonia. O. H. Robertson and C. G. Loosli, Chicago.—p. 575.

Local Recovery in Experimental Pneumococcus Lobar Pneumonia in Dog. O. H. Robertson and L. T. Coggeshall, Chicago.—p. 597.

*Japanese B Encephalitis Virus: Its Differentiation from St. Louis Encephalitis Virus and Relationship to Louping Ill Virus. L. T. Webster, New York.—p. 609.

Influence of Inflammation on Absorption of Substances of Varied Diffusibility. Rose G. Miller, New York.—p. 619.

Stable Hemolysin-Leukocidin and Its Crystalline Derivative Isolated from Beta Hemolytic Streptococci. E. J. Czarnetzky, Isabel M. Morgan and S. Mudd, Philadelphia.—p. 643.

Differentiation of Encephalitis Viruses.—Webster states that poliomyelitis, Japanese B encephalitis, Australian X disease and St. Louis encephalitis have features in common but are distinguishable by laboratory tests. Outbreaks of each are frequent and limited chiefly to hot weather. Each may be recognized by testing serums of convalescents for specific neutralizing properties against one of these virus agents or by obtaining virus from the cerebral tissue of fatal cases and testing its virulence for mice, monkeys and sheep and its neutralization in specific antiserums. The sheep virus is probably infectious for man. Louping ill virus has been related to the virus associated with X disease of children in Australia and now has proved similar to the newly discovered Japanese B encephalitis virus. Laboratory tests on susceptible animals indicate clearly that the most vulnerable port for the experimental introduction of these viruses is the nasal mucosa: this is the route of choice in mice for the St. Louis virus, in mice, monkeys and sheep for the Japanese and louping ill viruses and in monkeys for the poliomyelitis virus. There is also evidence that spontaneous louping ill may occur both in man and in mice through the nasal mucosa. But contact experiments to induce spontaneous transfer of St. Louis, Japanese B and poliomyelitis infections among susceptible laboratory animals have failed and it is difficult or impossible to detect the virus in the upper part of the respiratory tract of the diseased individual. Subcutaneous injections of Japanese B and louping ill viruses in mice and of poliomyelitis virus in monkeys and possibly in man may also induce disease. Reports state that in nature louping ill infection of sheep takes place subcutaneously by the bite of an insect. Experiments to detect virus in the blood of individuals following natural or experimental infection are either positive for brief periods only (louping ill and Japanese B viruses) or are completely negative (poliomyelitis and St. Louis viruses). Hence there is evidence for and against both the upper respiratory and subcutaneous routes of transmission of these infections and the question remains perplexing.

Journal Industrial Hygiene & Toxicology, Baltimore

20: 191-268 (March) 1938

Clinical and Neuropathologic Aspects of Electrical Injuries. L. Alexander, Boston.—p. 191.

*Skin Conditions Resulting from Exposure to Certain Chlorinated Hydrocarbons. May R. Mayers and Mabel G. Silverberg, New York.—p. 244.

Electrostatic Dust Weight Sampler. E. C. Barnes and G. W. Penney, East Pittsburgh, Pa.—p. 259.

Cutaneous Eruptions from Exposure to Hydrocarbons.—Because of the potential hazard of acneform eruptions in workers exposed to chlorinated hydrocarbons used in manufacturing, Mayers and Silverberg made a survey of twenty-two industrial plants using such materials. Three of these plants made insulated wire and the remainder made electrical condensers. The eruption, which is characterized by pustules, papules and comedones, may or may not become disabling. It usually occurs within the first few months of employment. The incidence of the acneform eruption appears to be higher in the summer than in the winter. The acneform eruption differs from the acne commonly found among adolescents in the following important respects: 1. There is severe pruritus, which seldom accompanies acne vulgaris. 2. Acne is associated with a dermatitis venenata or a paronychia of the fingers, especially the index fingers. 3. Comedones are far more numerous, more closely crowded together to form patches. 4. The distribution is along the exterior surfaces of the arms and especially around the elbows. 5. The condition may be transferred to other members of the family by contact with the skin and clothing, when these have a coating of the chlornaphthalene on them. The eruption may in severe cases involve the deeper layers of the skin and result in permanent scarring. In severe cases there is a tendency to secondary infection, especially when there is a coexisting pruritus and the worker scratches the lesions. Attention to adequate local and general ventilation, personal hygiene on the part of the workers and adequate intelligent medical supervision will effectively eliminate the hazard. Fumes and vapors should be exhausted laterally at their source, the velocity of air being maintained at 1,000 feet per minute. Employers should supply workers with highly starched uniforms, underwear, caps and gloves. These should be laundered every day. Two lockers should be provided, one for street clothes and the other for uniforms. Washing up before lunch and before leaving work at night should be done under supervision. Since the chlorinated naphthalenes are not soluble in water, the waxlike film which is deposited on the skin should first be removed with cold cream,

in which it dissolves. Workers should then wash thoroughly with warm water and a mild soap. A shower before leaving work is desirable. All workers should apply a protective lotion to all exposed parts of the body before starting work. They should be encouraged to report promptly any evidence of a cutaneous eruption or of general ill health.

Journal-Lancet, Minneapolis

58: 155-206 (April) 1938

Tuberculosis and the Physician. K. Emerson, New York.—p. 155.
Twentieth Century Case-Finding. H. R. Edwards, New York.—p. 156.
Tuberculosis Among Older Age Groups. F. L. Jennings, Oak Terrace, Minn.—p. 160.
Experiences with New Approach to Tuberculosis Case-Finding. B. H. Douglas, H. F. Vaughan and G. E. Harmon, Detroit.—p. 163.
The Management of Tuberculous Pleural Effusions. G. A. Dodds, San Haven, N. D.—p. 165.
Rest and Collapse Therapy in Treatment of Pulmonary Tuberculosis. E. W. Hayes, Monrovia, Calif.—p. 169.
Tuberculosis Work in South Dakota. J. V. Sherwood, Sanator, S. D.—p. 172.
Antituberculosis Work at the Flandreau Indian School. A. S. Rider, Flandreau, S. D.—p. 175.
Reminiscences of Tuberculosis Control Work in Montana. C. E. K. Vidal, Troy, Mont.—p. 178.
Tuberculosis Case-Finding Program for the Smaller College. C. E. Lyght, Northfield, Minn.—p. 180.
The History and Progress of Tuberculosis Eradication Among Cattle. J. R. Mohler, Washington, D. C.—p. 183.
*Induced Pneumoperitoneum in Treatment of Pulmonary Tuberculosis: Review of 200 Cases at Olive View Sanatorium. E. S. Bennett, Olive View, Calif.—p. 187.
Survey of Tuberculosis Control Work in South Dakota. B. A. Dyar and R. H. Wilcox, Pierre, S. D.—p. 190.
Newer Knowledge of Eye Health. W. L. Benedict, Rochester, Minn.—p. 191.
Iodine in Experimental Tuberculosis. L. W. Smith, Philadelphia.—p. 195.

Pneumoperitoneum in Pulmonary Tuberculosis.—Bennett states that during the last two years pneumoperitoneum has been induced in 200 patients. Thirty-two of these patients have died since, after an average of about eight months of treatment. Necropsies were performed on fifteen. In view of the advanced stage of the disease in most of these patients this case fatality rate cannot condemn pneumoperitoneum, especially since the necropsies did not indicate that this was a factor responsible for death in any case but one, in which instance it accelerated what was otherwise an apparently certain death. Clinically and symptomatically, improvement was noted in more than half of the patients treated. A careful analysis was made of the cavities in 120 of these cases; 90 per cent showed cavitation with a total of 211 cavities. Of the 211 cavities, 22 per cent of those in the upper third, 33 per cent of those in the middle third and 31 per cent of those in the lower third could not be visualized roentgenologically after pneumoperitoneum had been well established. Reduction in the size of cavities was noted in an additional 12 per cent of those in the middle third. The remainder of the cavities showed no change or became larger, or more recent roentgenograms were not available because of the short duration of the treatment or the departure of the patients. In eleven patients showing infiltrative lesions without cavitation, four showed marked clearing of infiltration under pneumoperitoneum. Fifteen of the 200 patients after a period of artificial pneumoperitoneum underwent thoracoplasty or extrapleural pneumothorax who previous to the addition of pneumoperitoneum were in too poor condition or had too much contralateral disease to withstand these more radical operations. Pneumoperitoneum did not prove particularly effective when used in an emergency to control hemorrhage. A change from a previously positive to a negative sputum, following the establishment of pneumoperitoneum, occurred in fifty-seven patients out of the 173 whose sputum had been positive prior to the institution of this form of treatment.

Michigan State Medical Society Journal, Lansing

37: 297-384 (April) 1938

The Medical Profession versus Syphilis. T. Parran, Washington, D. C.—p. 315.
A Charge to Keep. M. Lick, Erie, Pa.—p. 319.
Neuropathology as a Science: Report of First Hundred Neuropathologic Specimens in Detroit. G. Steiner, Detroit.—p. 326.
Mental Hygiene Clinic and the School. L. H. Bartemeier, Detroit.—p. 331.
Medical Press Relations. L. C. Salter, Detroit.—p. 335.
Use of Sulfanilamide in Treatment of Gonorrhea: Report of Results in 175 Cases. G. Sewell, Detroit.—p. 339.

Military Surgeon, Washington, D. C.

82: 289-384 (April) 1938

Organization and Activities of the Medical Department of the Army: Importance of Medicine in National Defense. C. R. Reynolds.—p. 289.
Emergency Plastic Surgery. H. L. Updegraff.—p. 315.
Sclerodactylia: Report of Case. S. Hoechstetter.—p. 321.
Report on Ninth International Congress of Military Medicine and Pharmacy: The Use of Colorimetric Methods of Analysis in Laboratories. W. S. Bainbridge.—p. 324.
Edentates in the Armies—Definition—Treatment—Prosthesis—Military Employment in Times of Peace and War. Official Reports.—p. 330.
The Italian Medical Service During the Campaign in Ethiopia. P. Huard.—p. 337.
The Medical Specialists Units, United States Naval Reserve. A. Soiland.—p. 347.
Report of Case of Myasthenia Gravis Associated with Thymoma. G. F. Peer and C. J. Farinacci.—p. 350.
Children and Adequate National Defense. S. A. Cohen.—p. 355.
Fracture of Shaft of the Femur. R. R. Haley.—p. 358.

Minnesota Medicine, St. Paul

21: 225-296 (April) 1938

*Importance of Immobilization and Posture in Treatment of Acute Intections of Extremities. O. H. Wangensteen, Minneapolis.—p. 225.
Immediate and Subsequent Treatment of Burns. R. F. Hedin, Chicago.—p. 229.
Errors in Diagnosis and Treatment of Hyperthyroidism. A. S. Jackson, Madison, Wis.—p. 236.
Some Attempted Legislative Solutions to the Problems of Medical Care. T. V. McDavitt, Chicago.—p. 240.
Food Sensitivity Simulating Gastrointestinal Disease. C. I. Krantz, Duluth.—p. 245.
Dangers of Late Diagnosis of Intestinal Diseases. J. A. Bargen, Rochester.—p. 248.
Comparative Values of Injection and Surgical Treatment of Hernia. G. Earl, St. Paul.—p. 250.
Present Status of Infestation of Fishes of Long Lake, Ely, Minn., with Larvae of Diphyllobothrium Latum. H. E. Essex, Rochester.—p. 254.
Ovarian Tumors Among Young Girls. C. W. Mayo and W. L. Butsch, Rochester.—p. 256.
Coexisting Pernicious Anemia and Chronic Pulmonary Tuberculosis. D. V. Sharp, Oak Terrace.—p. 258.
Central Fractures of the Neck of the Femur Treated by Internal Fixation. W. C. Campbell, Memphis, Tenn.—p. 260.

Immobilization and Posture in Infections of Extremities.—During the last two years, Wangensteen has treated a variety of acute infections by immobilization in windowed (for drainage) plaster casts. Immobilization in plaster reduces movement to a minimum. Immobilization by splints or traction does not approximate the security and rigidity lent by adequate immobilization in plaster. The lymphatics ramify in the fascias overlying the muscles. The importance of keeping muscles as quiet as is physically possible in phlegmonous inflammations is therefore understandable. Elevation of the infected part is a valuable addition to this mode of treatment—particularly when the inflammation concerns the soft tissues. Increased relief of pain and quicker reduction of swelling are obtained.

Missouri State Medical Assn. Journal, St. Louis

35: 115-158 (April) 1938

Acute Hemolytic Streptococcic Gangrene of Skin and Subcutaneous Tissue. J. G. Probstein and C. J. Heifetz, St. Louis.—p. 115.
Necrosis from Hypodermoclysis. B. S. Pruett, St. Louis.—p. 118.
Use of Protamine Zinc Insulin. F. Neuhoff, St. Louis.—p. 119.
Collapse in Pneumonia. D. G. Stine, Columbia.—p. 121.
Intravenous Therapy. J. S. Lundy, A. E. Osterberg and E. B. Tuohy, Rochester, Minn.—p. 124.
Cured Diabetes? B. Y. Glassberg, St. Louis.—p. 128.
Industrial Tuberculosis: A Public Health Factor. H. I. Spector, St. Louis.—p. 131.
Diagnosis and Treatment of Cholelithiasis and Extrahepatic Ductile Stones. P. F. Hunt, Kansas City.—p. 133.
Study of Medical Care. R. G. Leland, Chicago.—p. 137.

Nebraska State Medical Journal, Lincoln

23: 121-160 (April) 1938

Amebiasis: Study of 100 Cases. G. W. Covey, F. L. Rogers and G. R. Underwood, Lincoln.—p. 123.
Congenital Hypertrophic Pyloric Stenosis: Review of Forty-One Operative Cases. A. Brown, Omaha.—p. 128.
Puerperal Infection. P. Findley, Omaha.—p. 130.
Pregnancy and Rheumatic (Valvular) Heart Disease. F. W. Niehaus, Omaha.—p. 133.
Ovarian Cysts: Some Surgical Aspects. B. C. Russum, Omaha.—p. 135.
Evaluation of Scoliosis Treatment. W. R. Hamsa, Omaha.—p. 137.
Intradermal Immunization. Helen Wyandt, M. Bayliss, J. P. Tollman and M. F. Gunderson, Omaha.—p. 140.

New England Journal of Medicine, Boston

218: 411-452 (March 10) 1938

The Massachusetts Pneumonia Program. H. D. Chadwick, Boston.—p. 411.
Physical and Clinical Observations on Use of Million-Volt X-Rays. R. Dresser and J. Spencer, Boston.—p. 415.
Intestinal Tuberculosis. G. A. Moore, Brockton, Mass.—p. 418.
Surgical Treatment of Pain. E. C. Cutler, Boston.—p. 422.
Progress in Neurology in 1936. J. Loman, Boston.—p. 426.

218: 453-502 (March 17) 1938

*Diagnosis, Treatment and End Results in Gonococcic Arthritis: Study of Seventy Cases. W. W. Spink and C. S. Keefer, Boston.—p. 453.
Gallstone Ileus. F. G. Balch Jr., Boston.—p. 457.
Progress in Tuberculosis, 1936-1937. J. B. Hawes 2d and M. J. Stone, Boston.—p. 479.

218: 503-548 (March 24) 1938

Sulfanilamide: A Review. M. A. Schnitker, Boston.—p. 503.
Dissecting Aneurysm of the Aorta: Two Cases with Unusual Features. S. Weiss, Boston.—p. 512.
A Challenge to Medicine. R. G. Leland, Chicago.—p. 518.
Primary Thrombosis of Axillary Vein. B. I. Goldberg and J. A. Foley, Boston.—p. 521.
Botulism in Massachusetts: Report of Two Cases. H. Rosen and N. Gordon, Boston.—p. 524.
Anaphylaxis to Sodium Morrhuate Following Injection Treatment of Internal Hemorrhoids. N. J. Simmons, Boston.—p. 527.

218: 549-586 (March 31) 1938

Wringer Arm: Report of Twenty-Six Cases. D. W. MacCollum, Boston.—p. 549.
Apical Chest Lead as Chief Aid in Diagnosis of Coronary Occlusion. H. B. Sprague and S. McGinn, Boston.—p. 555.
Significance of Weakly Positive Aschheim-Zondek Test. B. Tenney Jr. and F. Parker Jr., Boston.—p. 561.
Neurologic Manifestations of Subacute Bacterial Endocarditis. C. M. Krinsky and H. H. Merritt, Boston.—p. 563.

218: 587-626 (April 7) 1938

Acute Postoperative Duodenal Fistula: Report of Twelve Cases. M. K. Bartlett and W. H. Lowell, Boston.—p. 587.
Thrombophlebitis in the Legs. J. Homans, Boston.—p. 594.
Benign Stricture of Esophagus Complicating Duodenal Ulcer. E. B. Benedict and E. M. Daland, Boston.—p. 599.
Hyperventilation Tetany. R. Harwood, Boston.—p. 602.

Gonococcic Arthritis.—Spink and Keefer treated twenty-six of their patients (group 1) medically. In group 2, twenty-four patients had sufficient evidence of an effusion into one or more joint spaces to warrant aspiration of the synovial fluid in addition to medical therapy and group 3 was composed of twenty patients whose joints were aspirated and also opened and followed by lavage. Two of the group 1 patients died. On leaving the hospital (average stay fifty days), eighteen patients were completely free of all joint symptoms, with no limitation of motion and no x-ray evidence of destruction of the joints; of the remaining six, one ultimately had a complete bony ankylosis of a wrist joint, one had x-ray evidence of destruction of one metatarsal joint but no limitation of function, two had a partial ankylosis of the wrist joints and two had a residual soreness of the joints of the lower extremities, which disappeared after several weeks. The average stay in the hospital in group 2 was fifty-three days. The aspirated synovial fluid from twenty-two of the patients was sterile. Infected fluid was aspirated from the shoulder joint of one patient and from the wrist joint of another. None of the group died. Follow-up observations on these patients revealed that only one had a recurrence of joint symptoms. This followed a second attack of gonococcic urethritis. Fourteen patients had complete recovery of the function of their joints with no x-ray evidence of their destruction. Two patients had bony ankylosis of a wrist joint. One had a hyperflexion deformity of the toes. Another had destruction of the metatarsal joint of the first toe but no limitation of function. The remaining six patients had residual periarticular adhesions of the knee joints with slight limitation of motion on flexion (from 10 to 20 degrees) but no limitation on extension. Gonococci were recovered from the synovial fluid of fifteen patients of group 3, while the fluid from five was sterile. The average stay in the hospital was sixty-one days. Only three patients ultimately had no limitation of motion of joints. Six had an ankylosis of one joint with less than 10 degrees of joint motion. Three patients were capable of only 50 degrees of motion of one knee joint. Eight patients had periarticular fibrosis of one knee joint with from 10 to 15 degrees of limitation of motion on flexion but with full extension.

New Jersey Medical Society Journal, Trenton

35: 129-192 (March) 1938

The Physician's Use of the Patient's Hospital Record. A. F. McBride, Paterson.—p. 133.
Safeguarding the Patient's Record. J. R. Howard Jr., Plainfield.—p. 136.
Legal Aspects of a Patient's Record. W. J. Wright, Hackensack.—p. 137.
Uveal Tuberculosis. G. P. Meyer, Camden.—p. 138.
Failures After Gastrojejunostomy: Clinical and Experimental Study. W. H. Barber and A. Bogatko, New York.—p. 142.
Treatment of Pituitary and Ovarian Dysfunction. Rita S. Finkler and M. Friedman, Newark.—p. 150.
Tuberculosis of Anorectal Region. J. Gerendasy, Elizabeth.—p. 156.
Role of the Hospital in Reducing Maternal Mortality: Maternal Welfare Article Number Twenty-Four. A. W. Bingham, East Orange.—p. 160.
The Common Cold and Cough. C. I. Ulmer, Gibbstown, and R. P. Fischelis, Trenton.—p. 164.

Public Health Reports, Washington, D. C.

53: 485-518 (April 1) 1938

Differences in Opportunities for Health. J. W. Mountin and Hazel O'Hara.—p. 485.
Contamination of Pasteurized Milk by Improper Relative Pressures in Regenerators. A. W. Fuchs.—p. 496.
Effect of Certain Small Filters on Plate Counts of Water Passing Through Them. A. B. Cronkright and A. P. Miller.—p. 505.

53: 519-550 (April 8) 1938

Disabling Sickness Among Male Industrial Employees During Final Quarter of 1937 and the Entire Year. W. M. Gafafer and Elizabeth S. Frasier.—p. 519.
Variations in the Form and Services of Public Health Organizations. J. W. Mountin, A. J. Borowski and Hazel O'Hara.—p. 523.
A Gas Absorption Apparatus. M. S. Nichols.—p. 538.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

13: 351-426 (March) 1938

Influence of Tropical Anemias on Physiopathology of the Brain. W. Rotter and A. Peña Chavarría, San José, C. R.—p. 359.
Actinomycosis in Puerto Rico. A. L. Carrión, San Juan.—p. 367.
Tuberculosis in a Frog. L. M. González, San Juan.—p. 399.

Rocky Mountain Medical Journal, Denver

35: 265-344 (April) 1938

Diagnosis and Treatment of Lesions of Cranial Nerves. W. E. Dandy, Baltimore.—p. 282.
Academic or Unsuccessful Research. A. B. Luckhardt, Chicago.—p. 288.
Etiology and Treatment of Osteomyelitis of the Skull. O. J. Dixon, Kansas City, Mo.—p. 295.
Value of Cystometric Studies in Atonic Bladder. M. A. Magid, Denver.—p. 299.
Specific Treatment of Hay Fever and Pollen Asthma in Denver. R. P. Johnson, Fort Kamehameha, Pearl Harbor, Hawaii.—p. 305.
*Use of Urea in Treatment of Wound Infections. G. E. Baker, Casper, Wyo.—p. 310.
Care of Rubber Goods. Sister Mary de Lourdes, Denver.—p. 312.

Urea in Treatment of Wound Infections.—For the last year Baker has used from 25 to 30 per cent solutions of urea for the treatment of wound infections. Results have been uniformly gratifying. It has been found to be stable in solution, nontoxic and remarkably effective in the removal of wound exudates, bringing about normal repair of tissues through its passive mechanical cleansing action. The material has been used in the same concentrations for the irrigation of wound sinuses. Open wounds demonstrating infection, fistulas or sloughs of the abdominal wall following operation, chronic discharging ulcerous areas, sinus tracts resultant from chronic bone infections and the like have undergone treatment with urea. Within a few days after institution of treatment the indolent areas of the wound begin to assume a freshened pink appearance and have a tendency to bleed freely. Wound exudates are readily extruded. Improvement is definite and continued. The odor from draining wounds is reduced to a minimum, often disappearing entirely. Pain due to prolonged use may be overcome by either reducing the strength of the solution slightly or by the use of a mild sedative before renewing the dressings or beginning the irrigations.

South Carolina Medical Assn. Journal, Greenville

34: 91-114 (April) 1938

Eight Hour Duty for Private Duty Nurse from the Standpoint of the Physician. A. T. Moore, Columbia.—p. 91.

X-Rays, Radium and Electrosurgery in Treatment of Cancer of Skin. W. M. Sheridan and P. Elkin, Spartanburg.—p. 94.

Southern Medical Journal, Birmingham, Ala.

31: 339-464 (April) 1938. Partial Index

Significance of Calcifications Within Lungs. D. A. Rhinehart, Little Rock, Ark.—p. 339.

*Artificial Fever Therapy in Skin Disorders: Clinical and Biochemical Studies, with Especial Reference to Physiology Involved. A. B. Litterer and K. Phillips, Miami, Fla.—p. 345.

Multiple Primary Malignancies of Large Intestine. G. V. Brindley, Temple, Texas.—p. 355.

Surgical Treatment of Cancer of Larynx. E. A. Looper, Baltimore.—p. 367.

Prophylaxis of Inflammatory Conditions in the Female Breasts. E. C. Smith, New Orleans.—p. 374.

Anterior Pituitary Gonadotropic and Anterior Pituitary-like Hormones in Treatment of Cryptorchidism. H. H. Turner, Oklahoma City.—p. 381.

Sulfanilamide in Treatment of Genito-Urinary Infections. A. L. Clark and D. W. Branham, Oklahoma City.—p. 387.

Sulfanilamide in Treatment of Gonococcic Infections in the Male. T. Ainsworth, Jackson, Miss.—p. 391.

Sulfanilamide Therapy in Gonorrhea and Its Complications. E. P. Alyea, W. E. Daniel and J. S. Harris, Durham, N. C.—p. 395.

Chronic Ulcerative Colitis. H. W. Cave and T. T. Mackie, New York.—p. 414.

Physiologic and Pathologic Reactions of Liver. F. C. Mann, Rochester, Minn.—p. 425.

Certain Aspects of Intracapsular Extraction of Cataracts in Average Practice: Report of Fifty-Eight Consecutive Cataract Operations. R. G. Anderson, Spartanburg, S. C.—p. 431.

Clinical Note on Occurrence of Neurologic Manifestations in Insulin Hypoglycemia (Sakel). L. A. Golden, New Orleans.—p. 434.

Anatomic and Functional Results in Fractures of Pelvis. F. W. Carruthers, Little Rock, Ark.—p. 451.

Fever Therapy in Cutaneous Disorders.—Litterer and Phillips used fever therapy in the treatment of 167 cases of cutaneous diseases (eczematoid, erythema multiforme, psoriasis, endocrinopathies, urticaria and seborrheic dermatitis). In the eczematoid group a 96 per cent immediate response was obtained and this high improvement continued well into the fourth month of observation. Between this and the fourth year a relapse of 31.25 per cent was observed in those patients who received a complete clinical remission of their cutaneous lesions immediately after the course of fever treatments. The immediate response in the erythema multiforme cases revealed a complete resolution in 90 per cent, which again extended well into the fifth month. But over a period of two years there was a relapse ratio of 33⅓ per cent. Psoriasis revealed a 50 per cent immediate response, but within four years 33⅓ per cent had relapsed. The immediate response of endocrine cases to fever therapy with complete abeyance of their cutaneous manifestations was 80 per cent. After four years there have been no relapses. Only a 62.5 per cent immediate response was obtained in urticaria and 60 per cent of these relapsed. In addition to these eighty cases, a group of seventy-five cases has been studied over the last seven years with reference to the part played in the etiology by underlying systemic conditions. In more than 90 per cent there can be demonstrated by thorough study abnormal upsets in one or more of the gastrointestinal, liver and biliary or endocrine systems. When these conditions are isolated and the treatment consists of correcting them in addition to fever therapy, the immediate response immediately rises to 85 per cent and the relapse ratio drops to 25 per cent. So successful has this combined management been that the authors have practically discontinued cutaneous testing and attempted desensitization in urticaria. The results are decidedly encouraging and justify further investigation. Much light is thrown on the mechanism of both the etiology and the response of these cutaneous disorders by a study of physiologic and biochemical changes already established during fever therapy. The two great regulators of body temperature balance in normal man are the heat regulating mechanism in the brain base and the proper function of the skin. Temperature changes at the base of the center of the brain invoke an immediate reflex response in the circulation at the surface with an associated fluctuation in the elimination of water and crystalloids through the excretory ducts. Fever therapy exerts its benefit by striking at the mechanism of the lymph space.

Surgery, Gynecology and Obstetrics, Chicago

66: 691-818 (April) 1938

*Intubation Studies of the Human Small Intestine: X. Nonsurgical Method of Treating, Localizing and Diagnosing the Nature of Obstructive Lesions. W. O. Abbott, Philadelphia, and C. G. Johnston, Detroit.—p. 691.

Mechanical Resuscitation in Advanced Forms of Asphyxia: Clinical and Experimental Study in Different Methods of Resuscitation. P. N. Coryllos, New York.—p. 698.

The Fertile Period in Practice: Five Year Clinical Study. A. G. Miller, Hobart, Ind.—p. 723.

Methods of Demonstrating the Activity of Corpus Luteum. D. I. Macht, Baltimore.—p. 732.

Experimental Cholecystitis. H. G. Aronsohn and E. Andrews, Chicago.—p. 748.

Carcinoma of Rectum: Plea for Group Study and Treatment. P. C. Morton, New York.—p. 769.

Routine Dissection and Demonstration of Recurrent Laryngeal Nerve in Subtotal Thyroidectomy. F. H. Lahey, Boston.—p. 775.

Bilateral Nontuberculous Iliopsoas Abscess. Marie Ortmayer, Chicago.—p. 778.

Tenosynovitis of Long Head of Biceps Humeri. V. L. Schrager, Chicago.—p. 785.

Operative Injuries of the Ureter. D. Feiner, Brooklyn.—p. 790.

Albee Spine Fusion Operation in Treatment of Scoliosis. F. H. Albee and A. Kushner, Venice, Fla.—p. 797.

*Primary Fibroblastic Tumors of Choroid Plexus of Lateral Ventricles: Clinicopathologic Study of Three Cases. W. J. Gardner and O. A. Turner, Cleveland.—p. 804.

Epidermoid Carcinoma of Buccal Mucosa. C. C. Lund, Boston.—p. 810.

Intubation of Small Intestine.—In a fairly large group of patients with gastrointestinal obstruction, gastroduodenal suction is not enough to relieve the distention. In a still larger group, though the distention is relieved, the location as well as the nature of the obstructive lesion is still unknown. Abbott and Johnston offer a method (intubation) of management that will often decompress the abdomen by completely emptying the entire small intestine proximal to the obstruction and has enabled a restitution of normal intestinal action without the necessity of surgical intervention. Moreover, having advanced the tube to the point of obstruction, one can often, by the study of aspirated intestinal contents and by the injection of a minimal amount of an opaque medium through the tube, identify both the position and the nature of the obstructing lesion. Whenever gangrene of the intestine is suspected, operation must continue to be the treatment of immediate choice. The procedure is based on the method described by Miller and Abbott for intubation of the small intestine. Intubation for the relief of intestinal obstruction has been attempted in sixteen cases with failure in only three. While the symptoms in one or two instances were mild, the patients were desperately ill. In nine instances function returned spontaneously following a variable period of decompression. Paralytic ileus and organic obstructions have responded in an essentially similar fashion. In the four cases in which the obstructing lesion was studied roentgenologically after the injection of a barium sulfate suspension through the tube, the point of closure was identified and the end of the tube was found to be lying within a finger's length of the obstruction itself.

Primary Fibroblastic Brain Tumors.—Gardner and Turner present three cases of primary fibroblastoma of the choroid plexus of the lateral ventricle. All three tumors were removed at operation. The intraventricular location of the tumor was not suspected from the clinical signs and the exact localization was made only at operation. The tumors were of mesodermal origin and probably arose from the fibrous elements of the choroid plexus or tela choroidea. There is no clinical picture that will localize an intraventricular growth, although there are certain neurologic features which may at times direct attention to the possibility of a lesion in this location. This is particularly true when localizing signs are absent in the presence of an obviously expanding intracranial lesion. Periodic headaches or intermittent attacks of increased intracranial pressure have both been cited as the most suggestive evidence of a growth within the lateral ventricle. This periodicity is due to the ball-valve action of the tumor and can occur in other parts of the ventricular system; namely, in the third ventricle. When the large size of the tumor prevents it from moving freely or when local adhesions fix the tumor in one position, this phenomenon may be absent. Obvious signs of increased intracranial pressure may be late in developing in young patients, since in them cranial suture separation may serve to decompress the brain until the bulk of the tumor plus the concomitant cerebral

edema overcomes this compensation. Hemianesthesia and hemiplegia have been pointed out as the most important localizing evidence. Intraventricular tumors appear to occur most frequently during the first three decades of life. While in many instances the symptoms are less than one year in duration, there are wide variations. In tumors in this location, the duration of symptoms is no index of the malignant condition of the growth since, by reason of their location, they may block circulation of the cerebrospinal fluid and produce fulminating signs of increased intracranial pressure, despite the fact that they may be encapsulated and perfectly benign.

Tennessee State Medical Assn. Journal, Nashville

31: 81-124 (March) 1938

What Should the Public Know About Syphilis? E. G. Clark, Nashville.—p. 81.
Hypertensive Disease: Basic Factors and Management. R. E. Ching, Memphis.—p. 87.
Relationship Between Water Balance and Intracranial Pressure. T. D. McKinney, Nashville.—p. 93.
Acute Mastoiditis. W. G. Kennon, Nashville.—p. 98.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

46: 183-232 (April) 1938

Acute Hematogenous Osteomyelitis: Diagnosis and Rational Treatment. L. S. Lucas, Portland, Ore.—p. 183.
Bilateral Dermoid Cysts Complicating Pregnancy. J. V. Campbell, Oakland, Calif.—p. 186.
Surgical Significance of Gastric Leiomyomas. F. K. Collins and D. C. Collins, Los Angeles.—p. 188.
Surgical Treatment of Cancer of the Breast. T. F. Mullen, San Francisco.—p. 195.
Sorbitol. J. G. Strohm, Portland, Ore.—p. 200.
Present Status of the Problem of Functional Innervation of Thyroid Gland. A. C. Ivy, H. A. Davenport and S. Brock, Chicago.—p. 202.

West Virginia Medical Journal, Charleston

34: 145-192 (April) 1938

Parathyroids and Diseases of Bones. T. P. Sprunt, Baltimore.—p. 145.
Toxic Goiter and Its Effect on Industry. N. W. Gillette, Toledo, Ohio.—p. 153.
Nystagmus, and Some Phases of Labyrinthine Disease. V. E. Holcombe, Charleston.—p. 157.
Industrial Medicine and Control of Syphilis. R. R. Jones, Washington, D. C.—p. 162.
Doctors' Bills and the Law. J. C. Bright, Keyser.—p. 168.
Clinical Evaluation of Sulfanilamide in Treatment of Acute Gonorrhea in the Male. W. C. D. McCuskey and J. F. McCuskey, Wheeling.—p. 175.

Wisconsin Medical Journal, Madison

37: 177-260 (March) 1938

Treatment of Pneumonia. C. C. Sturgis, Ann Arbor, Mich.—p. 193.
New Advances in Treatment of Fracture of Neck of Femur. E. T. Evans, Minneapolis.—p. 198.
Surgical Treatment of Severe Streptococcic Infections. R. A. Kinsella, St. Louis.—p. 201.
Pain Relief in Labor. R. M. Grier, Evanston, Ill.—p. 204.
Cataracts: Differential Diagnosis. F. H. Haessler, Milwaukee.—p. 208.

37: 261-360 (April) 1938

Bedside Diagnosis of Cardiac Irregularities and Their Treatment. V. W. Koch, Janesville.—p. 277.
Clinical Use of Quantitative Blood Tests for Syphilis. W. F. Lorenz, Madison.—p. 281.
Syphilis and Pregnancy. M. Trautmann, Madison.—p. 286.
Use and Abuse of Obstetric Forceps. J. W. McGill, Superior.—p. 290.
Roentgen Kymography: Its Value in Diagnosis of Cardiac and Other Mediastinal Lesions. J. E. Habbe, Milwaukee.—p. 294.

Yale Journal of Biology and Medicine, New Haven

10: 309-418 (March) 1938

Degree of Bachelor of Medicine in the American Colonies and the United States. F. C. Waite, Cleveland.—p. 309.
Induction of Tumors by 3:4:5:6-Dibenzcarbazole in Male Mice of CBA Strain, Which Develops Spontaneous Hepatoma. L. C. Strong, G. M. Smith and W. U. Gardner, New Haven, Conn.—p. 335.
Time of Ovulation in Chimpanzees. J. H. Elder, New Haven, Conn.—p. 347.
Studies on Electrical Potentials of Living Organisms: II. Effects of Low Temperatures on Normal Unanesthetized Mice. R. G. Meader and C. S. Marshall, New Haven, Conn.—p. 365.
Reaction of Ferrets to Inoculation with Haemophilus Pertussis. C. S. Culotta, New Haven, Conn.; F. L. Marting, Boston, and A. A. Liebow, New Haven, Conn.—p. 379.
Serologic Patterns in Human Serums: Heteroagglutinins for Sheep, Mouse and Hen Erythrocytes. G. H. Smith, New Haven, Conn.—p. 391.
Anatomic and Chemical Changes in Myocardium Following Short-Term Coronary Artery Occlusion in Dogs. L. H. Bronson, Cleveland.—p. 405.
Syphilis Control in New Haven. C. F. Batelli and I. V. Hiscock, New Haven, Conn.—p. 411.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

13: 1-88 (March) 1938

Treatment of Renal Rickets. G. Graham and W. G. Oakley.—p. 1.
Periarteritis Nodosa with Subcutaneous Lesions and Recovery: Case. C. W. Vining.—p. 31.
*Congenital Steatorrhea Due to Pancreatic Defect. Margaret H. Harper.—p. 45.
Administration of Thyroid Gland to Premature Babies. A. Moncrieff.—p. 57.
*Undulant Fever in Children. D. H. Paterson and C. Hardwick.—p. 65.
A Standard Intravenous Glucose Tolerance Test. T. Crawford.—p. 69.

Congenital Steatorrhea Due to Pancreatic Defect.—Harper reports eight cases of congenital steatorrhea with the results of postmortem examination in four. The symptoms common to all these babies were failure to thrive on a normal diet, even on breast milk, and the peculiarity of their stools. These were bulky, frequent and offensive, with a rancid odor and of a pale creamy color or pale green. Oily material was passed with the stool and separately. As the children became older, x-ray examination of the bones showed osteoporosis, the teeth were badly developed, anemia became evident, sometimes of the macrocytic type, and there was great susceptibility to respiratory infections. Microscopic examination of the pancreas in those cases in which a necropsy was obtained suggests a failure of development of the gland. The conclusion arrived at after reviewing the material available in the literature and the cases reported here is that, in cases in which there is evidence of the passage of fatty stools from birth (particularly butter-stools) with failure of nutrition, the diagnosis of a congenital defect of the pancreas can reasonably be made.

Undulant Fever in Children.—Paterson and Hardwick encountered eight cases of undulant fever in children between the ages of 6 and 14½ years. Children comprise the largest milk-consuming section of the community, but the rarity of the disease among them has not yet been satisfactorily explained. It is probable that many cases are never recognized. Of the eight patients the youngest was 6 years old and only one was a girl. The beginning of the illness was abrupt, with signs of an infection of the nasopharynx, and the diagnosis was either that of a common cold or of influenza; it was only the persistence of the fever that attracted attention. In four instances the bouts recurred over a period of four months; in one case they persisted for a year. Agglutinations were positive in every case to a titer of 1:500 or higher. With 0.2 cc. of a vaccine containing both abortus and melitensis organisms, cutaneous tests were done on the patients and a strongly positive reaction was obtained in each case. The cutaneous test by itself, that is, without a positive agglutination, does not give reliable evidence of the disease.

Brain, London

61: 1-132 (March) 1938

Increased Spontaneous Activity Produced in Monkeys by Brain Lesions. C. P. Richter and M. Hines.—p. 1.
*Spontaneous Hematomyelia: Short Review and Report of Cases Illustrating Intramedullary Angioma and Syphilis of Spinal Cord as Possible Causes. J. C. Richardson.—p. 17.
Normal Disks in Patients with Chiasmal Lesions. A. A. McConnell and A. J. Mooney.—p. 37.
Neuron as Studied by Microincineration. L. Alexander.—p. 52.
Origin of the Fall in Pressure of Cerebrospinal Fluid After Its Artificial Elevation by Jugular Occlusion. T. H. B. Bedford.—p. 62.
*Vascular Lesions in the Brain Stem and Occipital Lobe Occurring in Association with Brain Tumors. M. T. Moore and K. Stern.—p. 70.
Observations on Pathways Transmitting Sensation of Taste. H. G. Schwartz and G. Weddell.—p. 99.
Primary Generalized Amyloid Disease with Involvement of Nerves: Case. S. De Navasquez and H. A. Treble.—p. 116.

Spontaneous Hematomyelia.—Richardson cites four cases of spontaneous hematomyelia. In the first case there was a small angioma in the first lumbar segment of the spinal cord which had ruptured, causing a central hemorrhage from the fourth thoracic to the lowest sacral segment. The angioma was considered a developmental vascular lesion rather than a tumor. The second case was one of old hematomyelia occurring with syphilitic meningomyelitis. A central hemorrhage occurred from the ninth thoracic to the fifth lumbar segment,

leaving an elongated strip of gliosis containing a large amount of old blood pigment. The third case was one of cervical hematomyelia in which the exact cause was not demonstrable, since pathologic examination was incomplete. In the last case hematomyelia was not fatal but left permanent sensory and motor changes resembling those of syringomyelia. Traumatic hematomyelia has assumed a false position of importance in the incidence of true hematomyelia. Hemorrhage is often overstressed in the conception of the pathologic changes due to injury of the spinal cord. Spontaneous hematomyelia should be considered as primary, nontraumatic hematomyelia and is probably always due to disease or maldevelopment of the spinal vessels. Vascular maldevelopments, similar to the maldevelopment found in the first case, comprise one of the commonest known causes of the condition.

Vascular Lesions in the Brain with Brain Tumors.—Moore and Stern examined 130 brains in which brain tumor or abscess was present for evidences of vascular lesions. The first hundred were from a consecutive series of necropsies, and fourteen showed accompanying vascular lesions either in the pons, midbrain or occipital lobe. In addition to these fourteen cases, four showing vascular lesions were examined among the remaining thirty brains of the entire group. Five of the total of eighteen cases of hemorrhagic cases presented the gross appearance of occipital lobe infarction and lesions of the brain stem in the others. Fourteen cases were studied histologically in frozen and celloidin sections. The basilar artery and its branches and the posterior cerebral and its calcarine branches were dissected out, embedded in paraffin, stained and studied. With the exception of one case (softening in the peduncular region), the lesions of the brain stem consisted of multiple fresh hemorrhages from the arteries. Histologically they resembled hemorrhages in arterial hypertension. The occipital lesions are hemorrhagic or ischemic infarctions. It is suggested that sudden changes in the pressure relationship between the supratentorial and infratentorial spaces lead to disturbance of the circulation in the area of the rostral end of the basilar artery. Compression of the posterior cerebral artery causes occipital infarction. Arterial congestion in the basilar artery causes a predisposition to hemorrhages which are finally brought on by a reflex rise of the systemic blood pressure. Surgical procedures seem to have no pathogenic significance. The clinical picture of the hemorrhages of the brain stem is that of a sudden onset of unconsciousness. They seem to be fatal in every case. The occipital lesions have their clinical counterpart in apoplectiform manifestations or visual disturbances which complicate the neurologic picture.

British Journal of Physical Medicine, London

1: 81-116 (March) 1938

Relative Rise in Temperature of Tissues Heated in the High Frequency Field. H. J. Taylor.—p. 82.
Role of Chromotherapy in Modern Medicine and Surgery. R. D. Howat.—p. 86.
Electrical Investigation of Neuromuscular Function. A. P. Cawadias.—p. 90.
Apparatus for Ultraviolet Irradiation. L. G. H. Sarsfield.—p. 94.
Some Indications for Physical Treatment. D. Pennington.—p. 100.

British Medical Journal, London

1: 551-604 (March 12) 1938

Some Recent Work in Experimental Cancer Research. W. E. Gye.—p. 551.
*Vitamin C Deficiency in Peptic Ulceration and Hematemesis. B. Portnoy and J. F. Wilkinson.—p. 554.
*Vitamin C Deficiency in Peptic Ulceration Estimated by Capillary Resistance Test. G. Bourne.—p. 560.
Prophylactic Use of Sulfonamide Preparations in Obstetric Practice. R. W. Johnstone.—p. 562.
Early Occurrence of High Blood Pressure in Coarctation of the Aorta. E. Joan Rooke.—p. 564.

Vitamin C Deficiency in Peptic Ulcer.—Portnoy and Wilkinson examined the blood content and the urinary excretion of vitamin C (cevitamic acid) by six methods in fifty-one control subjects, twenty-five patients with peptic ulceration and thirty-one patients with hematemesis. With the urinary excretion method, groups of normal controls, miscellaneous ward controls, patients with peptic ulcers and patients with hematemesis excreted mean daily amounts of 29, 17, 7 and 7 mg. respectively. With the saturation test it was found that to produce a 50 per cent excretion of the administered cevitamic acid the normal controls, patients with peptic ulceration and patients with hematemesis required from 500 to 2,300, 2,100 to 5,000 and 2,000 to 8,000 mg. respectively. The initial plasma cevitamic acid value (normal from 0.6 to 1.85 mg. per hundred cubic centimeters, patients with peptic ulceration and hematemesis from 0.14 to 0.59 mg. per hundred cubic centimeters) was an approximate measure of the vitamin C nutrition of the body tissues. In an oral cevitamic acid tolerance test (after 1,000 mg. of cevitamic acid orally) the maximal plasma cevitamic acid value was reached in from one to two hours, while the maximal urinary excretion occurred in from four to six hours; in normal controls there was a good response in both blood and urinary levels, while in the ulcer and hematemesis cases the response was negligible. The maximal plasma cevitamic acid value, determined by an intravenous tolerance test, was reached in from fifteen to twenty minutes after the intravenous test dose of 1,000 mg. of the acid, while the maximal urinary excretion occurred some two hours later. The results of the intradermal test for vitamin C deficiency agreed very closely with those of the other tests, decolorization times longer than ten minutes indicating vitamin C deficiency. The severest degrees of vitamin C deficiency were found in the patients with hematemesis. It is suggested that large doses of vitamin C should be given to patients with peptic ulceration and hematemesis.

Vitamin C Deficiency in Peptic Ulcer.—Bourne used Gothlin's capillary fragility method in examining patients with gastric and duodenal ulcer, cases of various diseases and normal subjects of both sexes. The lowering of the capillary resistance in cases of gastric ulcer is traceable directly to deficiency of antiscorbutic vitamins in the diet. The results were not of such a clearcut nature in the duodenal ulcer cases but there is little doubt that patients who have been on the dietary regimen usually prescribed for more than ten days show a definite increase in capillary fragility unless the diet has been supplemented with some potent source of antiscorbutic vitamins. The genesis of peptic ulcer could not be correlated definitely with deficiency of antiscorbutic vitamins in the diet, but the possibility that it may have a part cannot be excluded. It seems more likely that the deficiency of antiscorbutic vitamins in the therapeutic diet may be a factor influencing the transition from the acute to the chronic condition.

Glasgow Medical Journal

11: 113-160 (March) 1938

*Weil's Disease: New Occupational Disease in Fish Workers. L. S. P. Davidson.—p. 113.

Weil's Disease.—A study of 130 fish workers in Aberdeen in whom Davidson obtained positive serologic evidence of previous leptospiral infection suggests that Weil's disease occurs in three grades: (1) latent or subclinical infection, with or without insignificant symptoms, (2) mild infections with pyrexia and malaise but without jaundice and (3) severe infections with marked prostration and jaundice. The first group can be recognized only by serologic tests. The second group may be suspected if the illness occurs in an individual working in an occupation peculiarly liable to Weil's disease, but serologic tests are essential to confirm the suspicion. Cases in group 2 are usually diagnosed as influenza or tonsillitis. The third group has a symptomatology and course so typical that the clinical diagnosis can often be made with assurance. Since there can be no Weil's disease without rats, a campaign for the extermination or reduction of the rodent population is of paramount importance. Since it is fish remnants which attract the rats and since the spirochetes live in the slimy water, care should be spent in the removal of all offal at the end of each day's work. Half an hour before work commences in the morning the floors, benches and tables should be vigorously hosed with water and thereafter treated with a suitable disinfectant; a hypochlorite solution has a lethal effect on leptospirae in a dilution of 1:4,000. A high degree of immunity can be obtained from the subcutaneous inoculation of killed vaccines of Leptospira icterohaemorrhagica. Treatment on the general lines suitable for any severe febrile disease is required. A reduction both in the mortality of the disease and in the

severity of the toxemia has been shown to result from antileptospira serum, particularly if the serum is given early; i. e., within the first four days. After the seventh day, when the septicemic stage is over, the beneficial effects are much less marked. The amount of serum advocated is from 10 to 20 cc. given intramuscularly or intravenously, the dose to be repeated in from four to six hours as required.

Journal of Pathology and Bacteriology, Edinburgh

46: 221-400 (March) 1938

Effect of X-Radiation on Blood and Lymphoid Tissue of Tumor-Bearing Animals. J. R. Clarkson, W. V. Mayneord and L. Dorothy Parsons.—p. 221.
Development of Fibrosis in the Kidney. J. B. Duguid.—p. 237.
Action of Sodium Polyanethol Sulfonate ("Liquoid") on Blood Cultures. T. von Haebler and A. A. Miles.—p. 245.
Some Sources of Error in Interpretation of Fermentation Reactions, with Especial Reference to Effects of Serum Enzymes. N. E. Goldsworthy, J. L. Still and J. A. Dumaresq.—p. 253.
Fermentation of Glucosides by Streptococci. H. D. Wright.—p. 261.
Chronic and Fatal Form of Hydrothorax Produced in Rabbits by Intrapericardial Injection of Tincture of Iodine and Mechanism of Its Production. J. H. Dible and G. A. C. Lynch.—p. 271.
Combining Power of Staphylococcus Toxoid: Danysz Effect and Other Factors Influencing Its Determination. M. L. Smith and S. A. Price.—p. 289.
Oxygen Uptake of Washed Suspensions of Corynebacterium Diphtheriae in Presence of Glucose and Glycogen. R. Knox and R. Passmore.—p. 303.
Metabolism of Washed Suspensions of Corynebacterium Hofmannii. R. Passmore.—p. 309.
Production of Toxin by Bacillus Histolyticus (Clostridium Histolyticum). L. E. Walbum and G. C. Reymann.—p. 315.
Chemotherapeutic Action of Synthalin in Experimental Infections with Trypanosoma Brucei and Trypanosoma Congolense. P. Browning.—p. 323.
*Estimation of Fragility of Red Blood Corpuscles. E. F. Creed.—p. 331.
*Fragility of Red Blood Cells: Its Measurement and Significance. J. V. Dacie and Janet M. Vaughan.—p. 341.
Venous Splenomegaly: Study in Experimental Portal Congestion. T. B. Menon.—p. 357.
Aronson's Streptococcus: Experimental Study. J. W. Howie.—p. 367.

Estimation of Fragility of Erythrocytes.—Creed describes a method of estimating the fragility of red blood corpuscles which he believes gives more consistent and accurate results than methods previously employed. It consists in the addition of measured quantities of aerated whole blood to sodium chloride solutions of varying concentration, prepared by a dropping technic from a stock 25 per cent solution. The percentages of corpuscles hemolyzed and left unhemolyzed are estimated by matching against a series of color standards. The effect of the venosity of the blood on fragility is considerable, but preliminary aeration of the blood reduces the fragility of samples of varying venosity to a constant level. Variations in the p_H of the distilled water employed are a possible source of error in fragility determinations, but their effect is minimized by using whole blood in a dilution of 1:25. Anemia of itself increases resistance to hypotonic saline solution and must be taken into account in interpreting fragility curves. In normal persons the concentration of sodium chloride which hemolyzes 4 per cent of the corpuscles varies between 0.41 and 0.45 per hundred cubic centimeters and the concentration hemolyzing 50 per cent of corpuscles varies between 0.36 and 0.4 per hundred cubic centimeters. The fragility curve of a given normal person remains constant over long periods.

Fragility of Erythrocytes.—The method that Dacie and Vaughan used in estimating fragility was a modification of that of Creed. The calculated normal median fragility measured on fifty normal subjects is 0.366 Gm. per hundred cubic centimeters of sodium chloride, the healthy range being from 0.334 to 0.398 Gm. Red cell fragility is closely related to cell dimensions expressed as the mean corpuscular thickness divided by mean corpuscular diameter ratio. The latter may be termed an intrinsic factor influencing fragility. Increase in this ratio is associated with increase in fragility, but the reverse is not necessarily true. Extrinsic factors influencing fragility are the oxygen and carbon dioxide tension of the blood and the temperature and p_H of the hemolytic solution. Anemia produces an apparent reduction in fragility. This is partly due to the increased amount of plasma contained in any drop of blood, partly to change in cell volume resulting from oxygenation. Chemical variation in the cell constitution may also be important.

Journal of Physiology, London

92: 131-228 (March 14) 1938

Effect of Certain Hormones on Activity of Uterine Muscle of Mouse. G. H. Bell and J. M. Robson.—p. 131.
Effect of Placenta on Body Weight of Mouse. J. B. Brooksby and W. H. Newton.—p. 136.
Influence of Hydrogen Ion Concentration on Surface Tension of Some Colloidal Solutions. P. W. Perryman and C. F. Selous.—p. 151.
Sensory Fibers in Spinal Accessory Nerve. F. Echlin and N. Propper.—p. 160.
Observations in Man on Pulse-Accelerating Reflex from Voluntary Muscles of Legs. M. Alam and F. H. Smirk.—p. 167.
Action of Creatine and Creatinine on Circulatory System. B. G. Shapiro.—p. 178.
Action of Young's Glycotropic Factor of Anterior Pituitary Gland. H. P. Himsworth and D. B. M. Scott.—p. 183.
*Effect of Salt Deficiency in Man on Volume of Extracellular Fluids, and on Composition of Sweat, Saliva, Gastric Juice and Cerebrospinal Fluid. R. A. McCance.—p. 208.
Carbohydrate Metabolism of Fetal Dog Under Influence of Insulin. H. Schlossmann.—p. 219.

Salt Deficiency and Extracellular Fluids.—McCance found that experimental deficiency of sodium chloride in man produced: 1. A reduction in the volume of the body fluids in which injected sucrose or inulin was dissolved (the extracellular fluids). Reductions of from 28 to 38 per cent were observed. 2. A fall in the concentration of sodium, a rise in the concentration of potassium and no consistent change in the concentration of chloride in resting saliva. 3. A variable reduction or little change in the free and total hydrochloric acid and in the total chloride of gastric juice. These changes bore no close relationship to the simultaneous chloride changes in the plasma. There was also a small fall in the sodium and a rise in the potassium in the gastric juice. 4. A fall in both sodium and chloride of cerebrospinal fluid. 5. A considerable but variable fall in the concentration of sodium chloride in sweat. "Adaptation" to repeated sweating did not contribute to this result.

J. Royal Inst. Public Health and Hygiene, London

1: 315-376 (March) 1938

Milk as It Affects the Producer. L. M. Davies.—p. 334.
Milk as It Affects the Consumer. H. C. M. Williams.—p. 341.
History of Public Health. H. L. Oldershaw.—p. 361.

Lancet, London

1: 533-592 (March 5) 1938

Treatment of Retention of Testis. T. W. Mimpriss.—p. 533.
*Measurement of Vitamin B_1 in Human Urine as an Index of Nutritional Level: Further Quantitative Data. L. J. Harris, P. C. Leong and C. C. Ungley.—p. 539.
Onchocerciasis (Filarial Blinding) with Manifestations Developing in Britain: Case. A. R. D. Adams.—p. 545.
Mechanical Blood Pipet Shaker. R. G. Macfarlane.—p. 548.
*Treatment of Infected Wounds with Urea. L. F. Muldavin and Jean M. Holtzmann.—p. 549.
Acute Osteomyelitis of Patella. T. Moore.—p. 552.

Vitamin B_1 in Urine as Index of Nutritional Level.—Harris and his associates report data for various classes of subjects. Normal well nourished controls excreted on the average about 20 international units of vitamin B_1 daily. A group of "surgical" patients, who came from a lower social class in a poor industrial area and most of whom were known to have been on diets low in vitamin B_1, excreted only one third of this "normal" figure. Somewhat lower values were seen in a group of miscellaneous medical cases (average 5 international units daily). The lowest figures of all—excretions of 3.5 international units daily and less—were in cases of beriberi and polyneuritis of nutritional origin. Low values were seen also in a proportion of the cases of polyneuritis which had been judged on clinical grounds to be not primarily of nutritional origin. Responses to test doses were approximately parallel with the "resting levels" and served to confirm the separation into the foregoing categories. It is concluded that the urinary excretion furnishes a useful guide to the state of nutrition of the subject with regard to vitamin B_1. The low values so often found in medical cases may probably be attributed to one or more of the following causes: anorexia, poor hospital diets, raised metabolism (especially in fever), wasting of body tissues and faulty absorption or utilization. The importance of providing specially nourishing food during illness and convalescence is emphasized by these results. A "resting level" of excretion

of from 10 to 20 international units daily and a response of upward of 30 international units after the standard test dose (350 international units daily) implies average normal nutrition. Probably with the more advanced state of avitaminosis the most accurate indication of the degree of the deficit can be obtained by a determination of the number of repeated test doses which are needed before "saturation" is finally brought about at the normal level.

Treatment of Infected Wounds with Urea.—The procedure that Muldavin and Holtzmann used in the treatment of 170 cases of variously infected wounds with urea crystals is as follows: The wounds were syringed free from pus and necrotic material with a saturated solution of urea, excessive moisture was removed and urea crystals were then liberally applied. Waxed paper was placed next to the crystals to keep them in contact with the wound and to prevent the dressings from becoming soaked. This had the further advantage that it prevented the dressings from sticking to the raw surface of the wound. In all but small wounds zinc cream was spread over the adjacent skin. This was used as a precaution, since some moisture will reach the surrounding skin however carefully discharging wounds are dressed. Owing to the extreme diffusibility of urea when combined with a saturated solution for syringing, even the deepest wound can be treated effectively. After two or three applications, sloughs disappear and also any foul odor. Replacing the slough is a highly vascular granulating surface. However sluggish the local metabolism may be, this response apparently can be relied on and is often spectacular. Septic burns under this treatment become clean and form granulations so quickly that the surrounding epithelium is able to grow in with but little delay. The same prompt response is often obtained in varicose ulcers. The time taken for complete healing of the ulcer depends on its size and depth and on its chronicity. The response of superficial abscesses is good; the area of induration surrounding an abscess was eliminated in some and diminished in all cases by the urea. In the treatment of carbuncles, urea could be relied on to free the area of the wound from necrotic material. There is no evidence that urea directly stimulates epithelization. For this reason urea cannot be used as an "all purpose" casualty dressing. Urea does not exert an osmotic effect, no matter how applied, since cell membranes are freely permeable to it; i. e., any strength of aqueous urea solution will hemolyze blood. Pain experienced as the result of the application of urea cannot be due to an osmotic effect.

1: 593-648 (March 12) 1938

The Public Health Aspect of Heart Disease in Childhood. B. Schlesinger.—p. 593.
*Clinical Observations on Effect of Parenteral Administration of Vitamins A and D. W. N. Leak.—p. 599.
*Leptospirosis in Glasgow Tripe-Workers: Report of Possible Case of Leptospira Canicola Infection. R. D. Stuart.—p. 603.
Treatment of Peripheral Vascular Disease by Intermittent Venous Occlusion: New, Simple and Inexpensive Method. C. Wilson and A. G. Ogston.—p. 606.
Correction of Alar Deformity in Cleft Lip. A. H. McIndoe.—p. 607.
Generalized Osteitis Fibrosa Due to Retro-Esophageal Parathyroid Tumor. E. N. Allott and J. Jemson.—p. 609.
Typhoid Empyema Forty Years After Enteric Fever. C. R. T. Lane and A. E. Francis.—p. 612.

Parenteral Administration of Vitamins A and D.—Leak discusses his experience with the administration of a concentrated oily preparation of vitamins A and D by intramuscular injection. Some 1,500 injections have been given. The preparation used contains as its active ingredients 60,000 international units of vitamin A and 10,000 international units of vitamin D per cubic centimeter. Doses varying from 1 to 5 cc. have been used in twenty-four hours. The treatment has been observed to abolish the pain of iritis; rapidly rising temperatures reached their peak soon after midday, herpes zoster did not progress to vesicle formation and patients with general peritonitis looked well. It has also been used in severe burns for shock, in bronchopneumonia, in septicemia, in pernicious anemia with degeneration of the cord and in various nervous diseases. These vitamins should not be regarded as being strictly part of the fighting forces of the body at all. Rather they seem to give what one might call positive health to some of the body cells, enabling them to withstand the effects of infection. They are not antitoxic in the way of neutralizing the toxins, but they do seem to be able to render the cells more impervious to toxic effects and probably help to repair damage. If this is so, it is only natural that their sphere of usefulness should be wide.

Leptospirosis in Glasgow Tripe-Workers.—Stuart cites a case of leptospirosis, Weil's disease, in a tripe-worker and gives evidence of such infections having occurred in four of twenty-five other tripe-workers. Of fourteen rats caught in the building in which the cases occurred, eleven showed infection with Leptospira icterohaemorrhagiae. Evidence suggestive of Leptospira canicola infection has been found in one human case.

Medical Journal of Australia, Sydney

1: 417-464 (March 5) 1938

Assessment of the Physical Findings and Associated Structural Changes in Pulmonary and Cardiac Disease. D. J. Thomas.—p. 419.
Suppurative Conditions of Lung and Their Treatment, with Especial Reference to Ultra-Short Wave Therapy. G. C. Moss.—p. 433.
Disorders of Pituitary Gland in Relation to Circulatory and Metabolic Disturbances: Clinical Aspect. D. W. Carmalt-Jones.—p. 439.
Disorders of Pituitary Gland in Relation to Metabolic and Circulatory Disturbance. C. S. Hicks.—p. 441.
How Civilization Manufactures Neuroses: Survey of 200 Consecutive Cases. J. Bostock.—p. 444.

Chinese Medical Journal, Peiping

53: 109-210 (Feb.) 1938

Comparative Study of Ninety-Three Cases of Placenta Praevia and Seventy-Four Cases of Abruptio Placentae in the Peiping Union Medical College from 1921 to 1935. K. T. Lim.—p. 109.
Calcification in Angiomas. F. Y. Khoo.—p. 127.
*Relationship Between Vitamin C and Basal-Sulfur-and-Nitrogen Metabolism of Psoriasis Vulgaris. F. Reiss.—p. 141.
Hereditary Ataxia: Familial Occurrence in Five Generations. C. S. Yang, M. Y. Ling and S. L. Chang.—p. 161.
Disease Incidence Among Chinese Children: Observations from Six Hospitals. Annie V. Scott, C. C. Pi, and Kathryn S. Lair.—p. 169.
Treatment of Traumatic Tetanus: Note. H. C. Fang.—p. 185.
Intra-Abdominal Hemorrhage Due to Ruptured Graafian Follicle or Corpus Luteum: Report of Two Cases. S. Y. Chang.—p. 190.
Dysentery Bacillemia. Annie V. Scott.—p. 193.
Foreign Body in Maxillary Sinus: Report of Three Cases. P. W. Wang.—p. 195.

Vitamin C and Nitrogen Metabolism in Psoriasis Vulgaris.—Reiss investigated the excretion of vitamin C in psoriatic patients, the response of excretion of vitamin C after peroral and intravenous medication, the effect of vitamin C on basal metabolism, sulfur and nitrogen metabolism and the clinical effects of vitamin C on psoriatic lesions. There was a definite decreased excretion of vitamin C in his cases of psoriasis. It is all the more remarkable, because the daily intake was within fairly normal limits. The author cannot give an acceptable explanation of this depletion but believes that it is either destroyed by an infective agent of various origins supposed to be the cause of psoriasis or that the disturbed epidermal cellular metabolism in psoriasis demands a higher vitamin C intake. It is not impossible that in order to eliminate the waste products, which are accumulated in psoriatic scales, a higher amount of cevitamic acid is required and the organism apparently cannot fulfil this increased demand with the supply of the ordinary diet. Unless some ability to synthesize vitamin C is assumed, difference between intake and output should be indicative of storage. A large amount is retained and only proportionally small quantities are excreted, which is a further proof of the depletion and of the high demand of cevitamic acid in psoriasis. There does not seem to be any difference between the intravenous and peroral route of medication in the urinary excretion of cevitamic acid. No definite conclusion can be made on the influence of vitamin C on basal metabolism. There was a definitely decreased excretion of sulfur, which can be increased by medication with vitamin C. Cevitamic acid has little appreciable effect on nitrogen excretion. With the exception of two cases which cleared up with the ingestion of cevitamic acid and which were observed before the metabolic studies were begun, no case which is concerned primarily with the effect of vitamin C on metabolism showed any clinical improvement. It may be possible that clinical improvement could be achieved by saturating the organism. There seems to be some kind of vicious circle between the offered vitamin C and its rapid destruction, in the solution of which may be found the key to the treatment of psoriasis.

Presse Médicale, Paris

46: 545-568 (April 9) 1938

Morphologic Types of Predisposition to Pulmonary Tuberculosis. A. Jacquelin and A. Opolon.—p. 545.
*Late Cardiac Disturbances After Electrical Accidents. C. Verdan.—p. 547.

Cardiac Disturbances After Electrical Accidents.—According to Verdan, auricular fibrillation is a syndrome of multiple causation. After discussing predisposing and eliciting factors, he directs attention to the importance of electrical accidents in the etiology of auricular fibrillation. It is known that electric current may elicit ventricular fibrillation which results immediately in death, but it is established also that auricular fibrillation may follow immediately after an electrical accident. The author regards it as curious that in this century of electricity, in which electrical accidents are comparatively frequent, such cases are rare. In a review of the literature he cites the case of Jaksch-Wartenhorst and Rhil, in which the auricular fibrillation was detected by electrocardiographic registration immediately after the electrical accident. Other cases of auricular fibrillation after electrical accidents are those of Dick, of Laslett, of Hay and Jones and of Sigler and Schneider. Especial attention is directed to the studies of Jellinek, who differentiates between immediate and late cardiac disturbances. The author thinks that the late cardiac disturbances after electrical accidents deserve especial attention. He gives detailed histories of two interesting cases which have the following points in common: 1. At the time of the appearance of the first symptoms, both patients were young men of about the same age, 31 and 32 years, respectively. 2. In neither of them did the previous history reveal rheumatism, polyarticulitis or febrile inflammatory diseases. 3. Neither of the two presented cardiac defects, especially mitral stenosis. 4. They did not have hyperthyroidism. 5. Neither of the two patients could state exactly when the first symptoms had disappeared. 6. The auricular fibrillation had existed for several years without modification, but it did not diminish the working capacity of the patients. 7. Both of the patients had sustained a typical electrical accident (shock of 500 and 220 volts, respectively, of an alternating current), before the appearance of the first symptoms. Since no other causes could be found, it is assumed that the cardiac disturbances are due to the electrical accidents. In view of the period of latency, however, which was especially prolonged in the second case, the connection is not absolutely certain. The author describes the history of a third patient with cardiac disturbances in whom the anamnesis revealed many minor and one rather severe electrical accidents. He admits that observations will be necessary to confirm or to contradict his view on the possibility of an etiologic connection between electrical accidents and auricular fibrillation. He says that just when this report was ready for the press a paper by Bruno Vogt appeared in the *Klinische Wochenschrift* (**16:**1671 [Nov. 27] 1937) on disturbances of the cardiac rhythm and anginal disturbances after an electrical accident. This case is interesting because it confirms Hüllstrung's observations on the elicitation of anginous disorders by electrical shocks.

Revue de Stomatologie, Paris

40: 209-286 (April) 1938. Partial Index

Mixed Tumors of Palatine Arch with Particular Histologic Character. L'Hirondel and J. Leroux-Robert.—p. 226.
*Present Histologic Conception of Mixed Tumors of Buccal Cavity. J. Leroux-Robert.—p. 231.

Mixed Tumors of Buccal Cavity.—Leroux-Robert points out that the stomatologist encounters tumors in the buccal cavity which are designated as "mixed." They are usually observed in the region of the soft palate or of the palatine arch. More rarely they are found on the internal surface of the cheeks or on the lips, only exceptionally on the tongue and still more exceptionally in the region of the sublingual glands. His material comprises 115 cases of mixed tumors of the cervicofacial glands (parotid, submaxillary, soft palate, palatine arch, lips, tongue, nasal cavity, lacrimal glands). Clinically they are mostly tumors that are well defined and well encapsulated. A number of these cases concern patients whose history could be followed for fifteen or eighteen years in the course of the successive relapses. The author analyzes the composing elements of the mixed tumors: the epithelial elements and the interstitial stroma. Then he takes up the architectural classification of the tumors and finally he discusses the clinical and evolutive characters of these tumors. He concludes that the mixed tumors of the salivary glands are epithelial tumors to be placed in the group of epitheliomas of the glandular parenchyma. This conclusion was imposed by (1) the histologic characters of these tumors which, contrary to the classic opinion, are not tumors of multiple neoplastic strains but rather epithelial tumors which have individuality only because of the importance of modifications which the epithelial elements force the connective tissue to undergo and vice versa; (2) the clinical and evolutionary characteristics of these tumors, which behave like epitheliomas by their tendency to relapses in more than half of the cases, and by their capacity to form metastases. The author refrains from a detailed therapeutic discussion, disregarding entirely the treatment of the tumors by radium, but he emphasizes a surgical factor. The mixed tumors must be removed as extensively as possible and not by simple enucleation of the tumor. When it concerns a salivary gland proper, the gland in which the tumor develops must be removed in its entirety.

Sang, Paris

11: 935-1094 (No. 9) 1937

Gastroscopy in Diseases of Blood. P. Chevallier and F. Moutier.—p. 935.
*Bone Marrow in Patients with Nephritis: Hemopoiesis and Definition of Nonprotein Nitrogen in Bone Marrow of Patients with Nephritis. G. Alexeieff.—p. 972.
Question of Agranulocytosis Caused by Aminopyrine. E. Filo.—p. 996.

Bone Marrow in Nephritis.—Renal insufficiency, Alexeieff says, leads to intoxication, which on the one hand becomes manifest in chemical disorders of the blood and on the other hand provokes a reaction of the hemopoietic organs, and the bone marrow in particular. It is necessary to differentiate between true and false anemia of nephritis. The latter depends on edema of the skin, cutaneous vascular spasms and chiefly on hydremia, which is like an edema of the blood itself. Even if the cases of false anemia, determined by hydremia, are excluded, it is still true that anemia exists in the majority of patients with chronic nephritis. This anemia of nephritis is not the result of a hemolytic process. In a minority of cases it develops as the result of a grave hematuria; in the majority of cases the anemia is the result of a deficient erythropoiesis in the bone marrow. The author decided to make an in vivo study of the bone marrow of nephritic patients. He studied the morphology of the bone marrow on dry smears colored by the method of Pappenheim (May-Grünwald-Giemsa). Simultaneously he determined the nonprotein nitrogen in the bone marrow and in the peripheral blood. The investigations were made on twenty-three patients, sixteen of whom had various renal disorders. Of these sixteen nephritic patients, thirteen presented anemia. Studies were made also on dogs with experimental uremia. On the basis of his clinical and experimental studies, the author concludes that: 1. Anemia of nephritic patients is a true anemia due to intoxication of the bone marrow by nitrogenous products. The degree of this anemia is found to correspond not with the azotemia of the blood but rather with the duration of the disease. The study of the bone marrow reveals a feeble regeneration of the normoblastic type which characterizes anhemopoietic anemias. 2. The leukocytosis, which is observed in nephritic patients, just as that of patients poisoned by mercury bichloride, is due to a pronounced regeneration of the myeloid tissue. 3. The number of blood platelets and of megacaryocytes (in the blood marrow), just as their morphologic character, does not show great modifications. The hemorrhagic symptoms that are observed in these patients are not at all dependent on a thrombopenia. 4. The bone marrow cannot be considered as a depot of nonproteic nitrogenous products. 5. Fluctuations in the nonprotein nitrogen content of the blood and bone marrow are about parallel. 6. The cases of intoxication by mercury bichloride are accompanied by a severe azotemia in the bone marrow. In the author's opinion this fact is explained in a satisfactory manner if it is admitted that the mercury bichloride produces a severe irritation of the bone marrow, which provokes a rise in the nitrogenous metabolism with increased formation of nonprotein products.

Minerva Medica, Turin

1: 297-352 (March 24) 1938

Spontaneous Recovery from Certain Forms of Pulmonary Tuberculosis. O. Maestri.—p. 299.
Influence of Unilateral Pneumothorax on Preexisting Tuberculosis of Opposite Lung: Study of 200 Cases. U. De Michelis and E. Conte. —p. 312.
*Effect of Pneumothorax on Contralateral Tuberculosis. V. De Luca.—p. 321.
Variations of Intrapleural Pressure in Course of Artificial Pneumothorax After Removal of Gas. P. Mino.—p. 330.
Embolic Chemotherapy According to Bernay's Method in Pulmonary Tuberculosis. A. Locatelli.—p. 331.
Direct Roentgen Therapy with Small Fields in Pulmonary Tuberculosis. G. Faldella.—p. 337.
Pulmonary Tuberculosis in Mature and Senile Ages. E. Debenedetti and F. Sardi.—p. 341.

Effect of Pneumothorax on Contralateral Tuberculosis.—De Luca followed the behavior of contralateral tuberculosis after establishment of unilateral artificial pneumothorax in ninety-nine patients suffering from bilateral pulmonary tuberculosis. The author concludes that unilateral artificial pneumothorax, done on the lung which is most intensely involved by tuberculosis, has a beneficial action on the pneumothoracized and the contralateral lung. The unsatisfactory results of unilateral pneumothorax in relation to lesions in the contralateral lung are due to pleural adhesions. The respiratory trauma at the point of insertion of the adhesion to the parenchyma of the lung is harmful and favors the evolution of tuberculous parenchymal lesions.

Rinascenza Medica, Naples

15: 73-108 (Feb. 15) 1938

Spirochetal Origin (Spirochaetosis icterohaemorrhagica) of Certain Fevers of Short Evolution Commonly Diagnosed as "Rheumatic Fever." C. Cantieri.—p. 79.
*Specific Gravity of Urine Test for Functions of Kidneys. M. Sorrentino. —p. 83.
Late Intracranial Hemorrhage from Trauma. C. Fucci.—p. 87.

Specific Gravity of Urine.—Sorrentino describes a technic for the examination of the function of the kidneys which he calls the test of specific gravity of urine. It consists in the determination of the volume and specific gravity of the urine that is eliminated in twenty-four consecutive hours. The patient, with an empty stomach, urinates at 8 in the morning on the day of the test. This specimen of urine is disregarded. After this the patient urinates at intervals of two hours. The volume and specific gravity of urine are determined immediately after each micturition. The patient voids the first two times while fasting. During the test the patient takes only one breakfast, one dinner and 1 liter of water. Breakfast is given at 12 noon. It consists of meat, bread, fruit and 1 liter of hypotonic water. Immediately after breakfast the patient goes to bed and lies there for four hours, after which he may get up and walk about. He has a dry dinner at 8 p. m. with some fruit but no soup, broth or water. The patient retires at 10 o'clock. All the urine eliminated between 10 p. m. and 8 a. m. of the following morning is put in a vessel and determinations are made as though for a single specimen. When the kidney has a normal capacity of concentration the urine reaches the greatest density of from 1.020 to 1.018. The oscillations between the greatest and lowest density are between 8 and 10 points. When there is insufficient renal concentration the greatest density is much lower than the foregoing figures, and the oscillations between the greatest and lowest densities are from 2 to 5 points. The greater the insufficiency of the kidney for concentration of urine the lower the figures of greatest density and the slighter the difference between the highest and lowest figures. In cases of hyposthenuria the figures of greatest density of the urine vary between 1.003 and 1.001, with slight oscillations between extremes. In moderate renal insufficiency the greatest density of urine is slightly lower than 1.018 and the oscillations between extremes are normal. In common chronic nephritis the changes are just the opposite. The author concludes that the test is simple and reliable. It is of value in the diagnosis of the origin of hypertension (arterial, renal or associated), the type of albuminuria and the intensity of chronic nephritis. The greatest value of the test consists in showing advisability or contraindications for immediate surgical intervention in renal and prostatic diseases. Hyposthenuria in nephrectomized patients as well as in patients who are suffering from prostatic and bilateral renal diseases contraindicates an immediate surgical operation. The patients are in a condition of oliguria, and azotemia may easily develop if an operation is performed. It is advisable to prepare the patients for the operation, which will be performed when polyuria is reestablished.

Rivista di Clinica Pediatrica, Florence

36: 193-288 (March) 1938

*Thiemia in Course of Typhoid in Children. I. Biddau.—p. 193.
Alterations of Right Side of Heart in Late Congenital Syphilis of Lung. A. Barcaglia.—p. 209.
Fragility of Bones Associated with Dolichostenomelia: Case. Frida Semah.—p. 228.
Erythremic Myelosis of Cooley's Type: Attempts at Transmissibility in Chickens. G. Ernandez.—p. 252.

Sulfur Metabolism in Children During Typhoid.—Biddau followed the behavior of sulfur in the blood of twenty-one children from 3 to 10 years of age in the course of typhoid. Cultures and blood serum tests gave positive results in all cases. The author found that during the febrile phase of the infection the metabolism of sulfur is altered. The oxidated fraction is slightly diminished, whereas the neutral fraction is much increased. The amount of total sulfur in the blood is slightly increased. The ratio between neutral sulfur and total sulfur in the blood is greatly increased. During convalescence the sulfur metabolism returns to normal. According to the author the changes of the sulfur metabolism in the course of typhoid are due to the following factors: (1) insufficient supply of exogenous sulfur because of lack of appetite of the patient and disturbances of absorption of the digestive tract, (2) increased disintegration of cellular proteins and (3) pathologic involvement of the liver, the adrenals and the spleen with consequent dysfunction of the structures to carry on the processes of fixation and oxidation of sulfur.

Archiv für Kreislaufforschung, Dresden

2: 157-266 (March) 1938

Clinical Experiences with Electrocardiographic Leads from Thoracic Wall. I. von Zárday.—p. 157.
Animal Experiments on Condition of Heart During Goiter by Means of Administration of Thyroxine. L. Zeus.—p. 165.
Animal Experiments on Oxygen Deficiency and Asphyxia. W. Mertens. —p. 192.
*Hyperergic Thrombo-Endarteritis in Infantile Lung During Eclampsia of Mother. W. Wepler.—p. 210.
New Method of Thoracic Lead in Electrocardiography by Means of Different and Indifferent Electrode. F. Kienle.—p. 224.

Eclampsia Allergy.—Wepler observed, in the peripheral arteries of the lung of an infant of 3 days, proliferation of the endothelium and secondary fibrinous thrombi. He says that these processes correspond to the vascular changes that are observed in allergic diseases. He regards the severe eclampsia in the mother as the cause of the changes in the lung of the infant. This observation is further corroboration of the theory that eclampsia is an allergic disorder.

Deutsches Archiv für klinische Medizin, Berlin

181: 531-682 (March 19) 1938. Partial Index

Typical Form of Hypertrophy of Left Side of Heart in Electrocardiogram and Influence of Digitalis on Intermediate Section of Electrocardiogram. E. Dunis, H. Hecht and C. Korth.—p. 539.
*Behavior of Cutaneous Temperature in Different Types of Diseases, Particularly in Inflammations. O. Scheurer and G. Müller.—p. 566.
Venous Blood Pressure and Temperature. B. Groák.—p. 579.
*Investigations on Action of Orally Administered Sulfur. R. Kühn.—p. 588.
Diagnostic Possibilities of Gastric Mucus. A. Mahlo.—p. 595.
*Is There a Uniform Heredity in Progressive Muscular Dystrophy? S. Kostakow and K. Bodarwé.—p. 611.
*Treatment of Pneumonia with Quinine-Calcium. R. Ott.—p. 658.

Cutaneous Temperature in Different Diseases.—Scheurer and Müller investigated whether organs with inflammatory processes influence the temperature of the skin above them. They made measurements on more than 100 bedridden patients by means of the thermo-element of Büttner. The instrument was applied to the region immediately after the area was uncovered and the temperature was read on the galvanometer. In measurements on twenty-seven patients with pulmonary tuberculosis, the authors discovered nearly always an increase in temperature on the diseased side, when the process was an exudative or an exudative-cavernous one. As the process

exacerbates, the increase in the cutaneous temperature becomes more noticeable. Cirrhotic processes seem to be without influence on the cutaneous temperature. In lobar pneumonia as well as in bronchopneumonia, the temperature does not show a uniform behavior. However, in new infiltrative processes which are not too far from the thoracic wall, the temperature is nearly always increased. The authors admit that in thoracic processes the measurement of the temperature, although of theoretic interest, is of slight practical value, because the diagnosis of these disorders is possible by roentgenoscopy. In articular diseases, however, the measurement of the cutaneous temperature is of considerable significance. Previous investigators had proved that in acute arthritis, as in tuberculosis and syphilis of the joints, the cutaneous temperature is increased, whereas in chronic articular rheumatism and arthritis deformans it is generally reduced; moreover, that an increase in cutaneous temperature over a joint in cases of chronic polyarthritis often indicates an exacerbation. The investigations made by the authors in articular disturbances revealed practically the same. They think that in articular diseases the measurement of the cutaneous temperature is a valuable aid for the diagnosis, the prognosis and the evaluation of the curative process. The same statement can be made about a number of diseases of the vascular system such as thrombophlebitis and arteriosclerotic gangrene. In inflammations in the abdomen the evaluation of the cutaneous temperatures would be of great importance, but the cited observations indicate that in these cases the behavior of the cutaneous temperature differs considerably. Nevertheless, the noticeable increase in the cutaneous temperature in cases of paranephric abscess, adnexitis, parametritis, dropsy of the gallbladder and several other disturbances show that the measurement of the cutaneous temperature is a method which, together with other methods of examination, can be of value in the diagnosis of somewhat obscure cases.

Orally Administered Sulfur.—Kühn says that the wide distribution of sulfur in the organism indicates the important role of sulfur in the life processes. The investigations reported in this paper were aimed to determine to what extent the metabolism can be influenced by the oral administration of sulfur. A sulfur preparation susceptible of resorption and containing sulfur in a reduced form was given in different doses to persons who were free from metabolic disturbances. The urine was examined for specific gravity, nitrogen, carbon, sodium chloride and the various sulfur fractions. Bickel's C : N quotient and the elimination of sulfur (particularly neutral sulfur) were taken as indicators of metabolic changes. It was found that the sulfur preparation increased the intermediate metabolism. In this connection the author points out that the same action had been noted by other investigators in the parenteral administration of sulfur.

Heredity in Progressive Muscular Dystrophy.—Kostakow and Bodarwé point out that, whereas most investigators agree that progressive muscular dystrophy is hereditary, the mode of transmission is still a disputed problem. On the basis of a careful study of the literature and of their own investigations on several groups of families, they conclude that progressive muscular dystrophy is always hereditary. Mutations of the hereditary factors of past generations is the pathogenic basis. The hereditary transmission is not uniform. This lack of uniformity is due to the fact that in addition to dominant genes recessive genes have a part. There are two genotypically different forms of progressive muscular dystrophy, an infantile and a junvenile type, both of which are hereditary. The authors show six genealogic trees and list the characteristics of the persons indicated in the diagrams. In two of the family groups, the hereditary transmission was sex linked and recessive and in the four other groups the transmission was of the simple recessive type. In one genealogic tree with recessive heredity a marriage between blood relatives was detected in the ascendancy. In this connection, the authors direct attention to the significance of marriages among relatives for the development of progressive muscular dystrophy from a recessive hereditary factor. In the genealogic trees with the sex-linked recessive heredity the patients are mostly of the infantile type with pseudohypertrophy; in those with the simple recessive heredity there are patients with the infantile and juvenile forms. The causes of death in the fatal cases were usually disorders of the respiratory organs and in those who survived there was likewise a great susceptibility for the diseases of the respiratory organs.

Quinine-Calcium in Pneumonia.—Ott reports his experiences with quinine-calcium treatment in 125 cases of pneumonia. Thirty-seven of the patients were children less than 5 years old, twenty-three were between 5 and 15 and the others were adults. The children received daily from 1 to 5 cc. of the quinine-calcium according to age; the adults were given 10 cc. daily. The total number of injections was between two and six. In children the mode of injection was always intramuscular. In adults it was at first intramuscular but later intravenous. Discussing the results of the quinine-calcium treatment, the author admits that the main advantage of this treatment, the shortening of the disease process, was realized in only a few cases, but in only twelve of the cases was the treatment begun before the third day of the disease. Although the quinine-calcium therapy did not fulfil all the expectations, the author recommends this treatment particularly at the onset of pneumonia.

Medizinische Welt, Berlin

12: 399-434 (March 19) 1938. Partial Index

Arteriosclerosis and Internal Secretion. K. Tsuji.—p. 401.
Diagnosis and Therapy of Coronary Diseases. E. Wagenfeld.—p. 405.
Statistical Study of Diabetic Cases. Ilse Wetzel-Albers.—p. 409.
*Little Known Cause of Pains in Throat. E. N. von Oettingen.—p. 413.

Pains in Throat.—Von Oettingen directs attention to a comparatively rare cause of recurrent pains in the throat, which readily escapes the ordinary examination and therefore remains often unrecognized. He relates the clinical histories of two patients. The first patient was a man aged 32 who for the last two years had had a hard formation behind the right palatine tonsil, which caused difficulties during swallowing, speaking and turning of the neck. Moreover, the patient complained of increased salivation, a feeling of tension in the right side of the inferior maxilla and tinnitus aurium on the right. Treatment had so far been unsuccessful. On the basis of a thorough examination and of roentgenoscopy, the disorder was finally diagnosed as abnormal prolongation of the styloid process. Following tonsillectomy the styloid process was exposed and a piece 2 cm. in length was removed from the lower end. The patient recovered and the symptoms disappeared. After reporting a second case of abnormally long styloid process, the author says that these cases frequently are not correctly diagnosed because in case of obscure disorders of the neck the examiner neglects the palpation of the oral cavity and the roentgenoscopy of the upper cervical region. The author explains the pathogenesis of such anomalies on the basis of the paleogenesis of the second branchial arch. From the inspection of 500 roentgenograms of the otologic clinic he draws conclusions about the incidence and extent of ossifications in that portion of the former branchial arch which is designated as Reichert's cartilages. His observations indicated that remnants of the hyoid arch can be expected in about 10 per cent of the cases. This percentage is considerably below that of Dondoli (25 per cent). The cause of this difference is still obscure, but the author thinks that racial factors may have a part.

Zeitschrift für klinische Medizin, Berlin

133: 673-790 (March 3) 1938. Partial Index

Reduction of Gastric Acidity by Local Vasoconstriction. W. Raab and V. Klare.—p. 673.
Occurrence and Frequency of Cevitamic Acid Retention in Case of Tolerance Tests. A. Jezler, H. Kapp and F. Ippen.—p. 692.
*Chronic Arsenic Intoxication by Grape Parasiticides. T. Schöndorf.—p. 713.
Influence of Denervation of Kidneys on Masugi-Nephritis. A. Hámori and A. Korányi.—p. 722.
*Acute Nicotine Intoxication in Human Subjects. M. S. Kobro.—p. 734.
*Vitamin B_1 and Carbohydrate Metabolism. P. Gottlebe.—p. 739.
Function of Gastric and Salivary Glands in Diabetes Mellitus With and Without Insulin Treatment. G. Fabian and C. Starck.—p. 747.

Chronic Arsenic Intoxication by Grape Parasiticides.—Schöndorf describes observations on a number of patients whose disorders were found to be the result of chronic poisoning with arsenic. Following a report of the clinical histories of twelve patients, he summarizes the symptomatology of the arsenic intoxication. The hyperkeratosis and melanosis were the

most constant and the most noticeable symptoms. The hyperkeratosis involves the inner surface of the hands and the soles of the feet. The keratotic areas are rough and fissured and a large number of small, hard, wartlike or stalactite-like elevations are visible. The melanosis is found chiefly on the trunk, particularly in the lumbar, inguinal and axillary regions. It appears as a dark brownish pigmentation interspersed with streaks that are free from pigment, so that a reticular outline is the result. In two cases, dark pigmented foci were observed also on the face. Partly as the result of a true polyglobulism and partly caused by a dilatation of the capillaries, the face shows an intense reddishness. This, together with the melanosis, gives the patients such a characteristic appearance that the diagnosis can frequently be based on it. Occasionally, papular eruptions appear on the face. On the whole, the skin is rather dry and atrophic. In the majority of the cases a hepatic impairment was noticeable. The damage to the liver is the most serious symptom of arsenic poisoning. The fatal termination of one of the cases was in the final analysis due to a failure of the hepatic function. Examination of the gastric juice revealed in the majority of cases subacidity and a high leukocyte content indicative of a gastritis. The majority of patients had signs of irritation in the upper and lower air passages. Polyneuritic symptoms were observed in four of the patients. For therapy, the author says emphasis was put on eliminating measures such as sweating cures, wet compresses and baths. When hepatic impairment had been detected, the treatment was the same as in other types of hepatic cirrhosis. Attention was given also to the proper evacuation of the bowels and adsorbents were given. The nature of the disorder was explained to the patients, and efforts were made to prevent further intake of arsenic. The majority of the patients were persons who worked in vineyards and who handled parasiticides containing arsenic. Four of the patients did not handle the arsenical parasiticides, but they too lived in the vineyard region and it is suggested that arsenic in the dust or a grape drink might be responsible. It is probable that an individual hypersensitivity to arsenic has a part in the pathogenesis of the arsenic intoxication because, taking into consideration the extensive use of arsenical parasiticides, the disorder would be more frequent if such was not the case.

Acute Nicotine Intoxication.—Kobro reports the clinical history of a youth, aged 18, a gardener, who developed acute nicotine poisoning after spraying plants in a closed greenhouse with a solution of nicotine sulfate. After spraying 400 liters of a 0.2 per cent solution of the nicotine sulfate in the course of several hours, during which he had inhaled the nicotine-charged air, the patient showed signs of intoxication. There were nausea, vomiting, convulsions and cyanosis. A retardation in the pulse frequency was soon followed by a tachycardia; moreover, there were mild temporary hypertension, increased vasomotor irritability, weak or abolished tendon reflexes, anisocoria and changes in the blood. Following hospitalization the symptoms gradually subsided and the patient was discharged after two days. Discussing the probable mode of development of the different symptoms, the author cites earlier animal experiments and stresses the part played by epinephrine and the suprarenals in the development of the nicotine intoxication.

Vitamin B_1 and Carbohydrate Metabolism.—Gottlebe directs attention to earlier reports on the great importance of the vitamin B complex for the carbohydrate metabolism. Among others, he cites Funk's observation that the symptomatology of beriberi can be exacerbated by the increased intake of carbohydrates and improved by the restriction of the carbohydrate intake. Vogt-Møller found that the vitamin B_1 requirements in beriberi are in direct proportion to the ingested quantity of carbohydrates. Moreover, excessive intake of sugar has been found to produce clinical pictures similar to the picture of beriberi. After citing animal experiments carried out by a number of investigators the author says that, in view of the disturbances in the carbohydrate metabolism during B avitaminoses, studies have been made to investigate whether vitamin B influences the carbohydrate metabolism in diabetes mellitus. He reviews some of the former investigations and then describes his own studies on the effect of injections of thiamin chloride on diabetic subjects and on persons without metabolic disorders. Investigating the effect of thiamin chloride on the fasting blood sugar of persons with and without diabetes mellitus, he observed a slight reduction in the blood sugar. Further he studied the influence of thiamin chloride on the course of the blood sugar curves of healthy and diabetic persons after dextrose tolerance tests. He observed an increase in the tolerance in the majority of cases. In case of insulin tolerance tests on healthy and diabetic persons, the action of thiamin chloride on the course of the blood sugar curve consisted in an intensification of the insulin action. The author observed further that the administration of thiamin chloride increases the hydrochloric acid secretion of the stomach. He discusses the possibility of a modification of the carbohydrate metabolism by vitamin B_1 by way of the sympathetic nervous system.

Sovetskaya Psikhonevrologia, Kharkov

13: 1-120 (No. 7) 1937. Partial Index

*Insulin Shock Therapy of Schizophrenia. E. K. Krasnushkin and G. M. Khanlaryan.—p. 5.
Insulin Hypoglycemia and Shock Therapy of Schizophrenia. K. A. Vangengeim and P. L. Magracheva.—p. 23.
Biothermic Manifestations in Central Nervous System During Epileptic Attacks. I. P. Bobkov.—p. 33.
Vegetative Disturbances in Lesions of Peripheral Neuron. V. A. Kislov.—p. 42.

Insulin Shock Therapy of Schizophrenia.—Krasnushkin and Khanlaryan point out certain antagonisms between schizophrenia and a number of diseases and pathogenic factors. There is some antagonism between acute infectious diseases and schizophrenia, and on the other hand a tendency to symbiosis with chronic diseases. A pyknic-thymic constitution exhibits an antagonism toward schizophrenia, but the shock producing factors manifest this antagonism in the highest degree. Among these the authors mention physical trauma to the brain, epileptic attacks, strangulation, psychic shock and the agonal state. The convulsion therapy of Meduna and the insulin therapy of Sakel utilize these antagonistic shock producing agents, the first by provoking epileptic attacks with the aid of camphor or metrazol, the second by inducing hypoglycemic shock. The glycopenic states in schizophrenic patients are complicated by certain peculiar psychotic manifestations which in themselves are of a favorable prognostic significance. Among these are a sense of euphoria, syntonia, self analysis and criticism and the disappearance of the constant schizophrenic symptoms. Among other manifestations are motor stimulations, maniacal states, occasionally depressive and hysterical states, and exacerbations of schizophrenic symptoms. According to the authors these manifestations, without actually reaching a comatose or precomatose state, give a favorable prognosis. The authors regard the technic of application of this method entirely safe and the benefits to be derived from it so decided as to consider it entirely permissible. The mortality from the application of the method in the western European clinics amounted to 1 per cent. It is, however, important to bear in mind certain contraindications to the treatment, such as diseases of the cardiovascular system, particularly arteriosclerosis, active pulmonary tuberculosis and nephritis. The authors have treated fifty-two patients by the method, most of them early cases up to one and one-half years in duration, and have noted a high percentage of recoveries and remissions, particularly in the early cases. The most striking results were obtained in paranoid types. The authors observed in most of their cases the development of prolonged (several weeks) hypomaniacal states, exhibiting all the features of manic-depressive insanity, as a transitional phase toward a favorable remission. The patients, at the same time, manifested an improvement in the physical state and a shift toward the physical characteristics of the pyknic constitution. With the aid of orthocardiographic studies, Dr. Lakosin of their clinic was able to demonstrate the change from the vertical position of the heart characteristic for schizophrenia to the dorsal, characteristic of a pyknic constitution. The authors believe that the effective action of insulin therapy is due to two antagonistic factors: (1) the shock-inducing effect of glycopenic attacks, resembling those of epilepsy, and accompanied by anoxemia of the brain cells as it occurs in strangulation, and inducing in its deep states a condition of coma nearing the agonal state, and (2) by stimu-

lation of elements antagonistic to circular constitution, a fact which explains the greater number of remissions in paranoid types, since these exhibit more ingredients of that constitution than other forms of schizophrenia.

Vrachebnoe Delo, Kharkov

20: 81-174 (No. 2) 1938. Partial Index

Symptoms and Diagnosis of Adhesive Pericarditis. M. Ya. Kalf-Kalif.—p. 93.
Electrocardiographic Studies in Congenital Heart Lesions. B. A. Kogan and I. M. Dubogrey.—p. 99.
*Lobeline Method of Determination of the Rapidity of Blood Circulation. M. M. Evzlina.—p. 113.
Certain Causes of Decompensation in Cardiovascular Patients. M. B. Burgsdorf.—p. 121.
Diagnosis of Early Hyperthyreosis. B. Z. Broder.—p. 123.
*Acidophilus Milk Therapy of Colitis. M. G. Gorin and D. Ya. Rosenberg.—p. 131.

Lobeline Method for Determining Velocity of Blood Circulation.—According to Evzlina, pharmacologic studies established that the stimulating effect of lobeline on the respiratory center is due to its action on the carotid sinus. She performed 140 determinations of the velocity of circulation by introducing into the cubital vein the contents of one ampule (0.003 cc.) of lobeline. This was done on an empty stomach, from one to two seconds being taken for introduction of the drug. This was followed by a reaction consisting of a deep inspiration followed by coughing, which persisted for from five seconds to two minutes. No other phenomena were noted. On the basis of her experience with the method in various diseases as well as in healthy persons, the author concludes that slowing of the velocity of blood circulation constitutes one of the earliest signs of circulatory insufficiency. The method alone cannot be regarded as determining the existence of a failing circulation; the latter is arrived at only after a complex study of all the hemodynamic factors. The lobeline method is to be preferred to all others because of its objectivity, a definite rapidly disappearing reaction, absence of any unpleasant concomitant manifestation, the possibility of repeating the determination within a short time without any harm to the patient, and the uniformity of the results. Patients with a decompensated cardiovascular system exhibit a definite slowing of the velocity of circulation. Successful digitalization is followed by a corresponding increase in the velocity of circulation.

Acidophilus Milk Therapy of Colitis.—Gorin and Rosenberg treated one group of seven patients with chronic diarrhea on the customary antidiarrhea diet for from seven to ten days, after which, if the symptoms were not modified, they added to the diet acidophilus milk. This was taken in three equal portions after meals in doses beginning with 100 cc. daily and increasing by 100 cc. daily until 500 cc. was taken. The same therapy was applied to another group of sixteen patients with the difference that the diet was an ordinary bland sparing diet and not a definitely antidiarrhea diet. The diet alone brought about an improvement in only one case of the first group. After the acidophilus milk therapy, five of the group had formed stools. Diet alone had no effect on the intestinal flora. On the acidophilus milk therapy a part of the patients exhibited a change from a gram-negative to a gram-positive or a mixed flora. The acidophilus milk therapy in the second group of sixteen persons resulted in a clinical cure in nine, improvement in three and insignificant improvement in four. On the indifferent diet a change in the microflora, in twelve investigated cases, took place in four; in one it changed to a gram-positive and in three to a mixed flora. When acidophilus milk was added the flora changed from a gram-negative to a gram-positive in five, became mixed in five and was unaltered in two. Patients who did not exhibit satisfactory improvement from the combination of the acidophilus milk and diet therapy were placed on "acidophile days." The method consisted of keeping patients in bed for from two to three days, all food being withheld except acidophilus milk in amounts of from 1 to 1.5 liters a day. The combination of starvation with the feeding of the acidophilus milk was much superior in its effect to other methods. The authors feel that the element of starvation was an important factor in the results obtained. Diarrhea disappeared and the stools became formed in 75 per cent after the first day, in 82 per cent after the second and in 91 per cent after the third. They feel that "acidophilus days" present an advantage over the fasting days advocated by von Noorden because they avoid the loss of calcium, obviate the necessity of subcutaneous injections of nutritive solutions and furnish from 60 to 75 per cent of metabolic needs, while the shift within the intestinal flora to acidosis creates unfavorable conditions for the growth of the putrefactive micro-organisms.

Norsk Magasin for Lægevidenskapen, Oslo

99: 353-456 (April) 1938

*Wassermann Reaction in Leprosy. E. Gundersen and O. Berner.—p. 353.
Immunity in Syphilis. E. Gundersen.—p. 379.
Norwegian Radium Hospital Through Five Years. S. A. Heyerdahl.—p. 395.

Wassermann Reaction in Leprosy.—Gundersen and Berner state that examination of the serum in twenty-six cases of leprosy (ten tubercular, eleven macular-anesthetic and five of nervous complications) showed a positive Wassermann reaction, also a strongly positive Kahn and Meinicke II reaction, in two cases, one tuberculous and one macular-anesthetic. They emphasize, in agreement with Pineda, that a positive Wassermann reaction in leprosy is due to syphilis and ascribe the positive reaction in their cases to a latent syphilis (in one case there was history of syphilis and antisyphilitic treatment).

Ugeskrift for Læger, Copenhagen

100: 303-332 (March 24) 1938

Attempts with Nitrous Oxide Anesthesia in Labor. E. Rydberg, H. Haldbo and A. Lauridsen.—p. 303.
*Differential Diagnostic Significance of Thrombocyte Count in Certain Forms of Anemia. S. Heinild.—p. 306.
Traumatic Neurosis Combined with Postoperative Neurosis. J. Ravn.—p. 311.
Hypertrophy of Prostate Treated with Gonadotropic Substance. H. Heidemann.—p. 312.

Thrombocyte Count in Anemia.—Heinild made thrombocyte counts in twenty-six cases (seven of pernicious anemia, five of hepatic cirrhosis or hepatic atrophy, seven of achylanemia and seven of cancer of the digestive tract). In all cases of pernicious anemia the thrombocyte values were definitely reduced and sometimes extremely low. In all cases of hepatic cirrhosis the thrombocyte count was also below normal; in one instance, in which the picture agreed with that of hepatic atrophy (Geill and Jørgensen), an extreme thrombopenia was demonstrated during three months. In achylanemia the blood platelet values were normal. Of the cancer patients five had a definitely increased thrombocyte count and two a normal count; necropsy was performed in the former, while in the latter diagnosis was made after roentgen examination and operation, respectively, which might perhaps indicate that a certain time is needed for the development of thrombocytosis.

100: 333-358 (March 31) 1938

Hormones of Hypophysis and Their Clinical Significance: Review. C. Holten.—p. 333.
*Infectious Mononucleosis and Meningo-Encephalitis. V. Schmidt and A. Nyfeldt.—p. 336.
Source of Error in Leukocyte Count. J. Engelbreth-Holm and C. C. Winkel Smith.—p. 339.
Quantitative Determinations of Sediment in Urine of Patients with Scarlet Fever. T. Bjering.—p. 342.
Hydatid Mole with Chorion Epithelioma: Case. A. W. Mortensen.—p. 344.
Method for Rapid Establishment of Hypoproteinemia with Glass Bead. J. Bing.—p. 346.
Treatment of Pyelitis with Granulatum Calcii Amygdalatis: Report from Practice. E. A. Kirketerp.—p. 347.

Infectious Mononucleosis and Meningo-Encephalitis.—In the first of the five cases of infectious mononucleosis described there were signs of meningitis on admission. Hence spinal fluid was examined in the other four cases, although no clinical signs of any infection in the central nervous system were seen on admission. The first four patients all gave positive agglutination in the blood with sheep blood corpuscles and growth of Listerella in the cerebrospinal fluid. In view of these cases Schmidt and Nyfeldt suggest that examination of the cerebrospinal fluid would be advisable in patients with infectious mononucleosis, especially considering the demonstrated late infection of the central nervous system. Treatment should accordingly be extended beyond the usual clinically demonstrable infectious stage, because of possible sequels in the form of chronic changes due to the involvement of the central nervous system in infectious mononucleosis.